UNIVERSITY OF BERN

FACULTY OF BUSINESS, ECONOMICS AND SOCIAL SCIENCES

Institute of Political Science

# Three Essays on the Concept of Trust and its Foundations

Inaugural dissertation submitted by Paul C. Bauer
in fulfillment of the requirements for the degree of Doctor rerum socialium
at the Faculty of Business, Economics and Social Sciences of the University of Bern.

Submitted by

Paul Cornelius Bauer
born in Regensburg, Germany

Bern, 21.01.2015

The faculty accepted this work as dissertation on 23.04.2015 at the request of the two advisors Prof. Dr. Markus Freitag and Prof. Dr. Diego Gambetta, without wishing to take a position on the view presented therein.

# Contents

# List of Figures

# List of Tables

# Acknowledgments

First and foremost I would like to thank my supervisor Prof. Markus Freitag at the University of Bern for giving me a scientific home and being my mentor for several years now. Under his auspices, starting as a student assistant in Konstanz, I had the opportunity to discover and grow into the academic world during the last years. I was lucky to have in him a supervisor who left behind a hierarchical leading style, working closely together with his students and publishing with them, at the same time allowing a lot of freedom.
I also would like to thank Prof. Diego Gambetta at the European University Institute, Florence for being an attentive host, for becoming my second supervisor and for teaching a causal inference course that focused on discussing students' creative ideas.
Furthermore, I am grateful to Prof. Richard Traunmüller, University of Frankfurt. As a motivated and full-hearted scholar he strongly influenced me in my desire to pursue a doctorate and some of the interests I am pursuing right now were triggered by him.
I am also profoundly indebted to my current and former colleagues: Kathrin Ackermann, Maya Ackermann, David Born, Matthias Fatke, Marlène Gerber, Birte Gundelach, Till Heinsohn, Sarah Kijewski, Anita Manatschal, Sean Müller, Carolin Rapp and many others. My dissertation has benefited from their comments, suggestions and encouragement.
In addition, I am grateful to the Faculty of Economics and Social Sciences at the University of Bern and the Swiss National Fund (SNF), who financed my participation in various method schools and conferences, making it possible to fully join the scientific discourse as a doctoral student. Especially Chapter 3 is the outcome of a 6-month stay at the European University Institute that was made possible by the SNF.
Moreover, I would like to thank my close friends and all the important people that have crossed my path during the last years for offering welcome distraction and inspiration during the different phases of my doctorate. Finally, I would like to thank my parents, Doris and Thomas, for their constant and indispensable support.

# Preface

This dissertation focuses on the concept of trust. It comprises five chapters: Chapter 1 (introduction) defines the concept of trust, gives a historical overview of trust measurement and outlines the debates that triggered the research in Chapter 2, 3 and 4. Chapter 1 partially reproduces a longer study that underwent peer-review for the working paper series of the IPSA Committee on Concepts and Methods (see Bauer 2014*a*).
Chapter 2, 3 and 4 have been published in the *Public Opinion Quarterly*, the *Swiss Political Science Review* and the *European Sociological Review*. Altogether, I have to thank 13 anonymous reviewers for their feedback. The three studies are independent as they each focus on a different research question and a different debate within trust research. At the same time, they are all concerned with the concept of trust and in Chapter 1 I outline in how far the respective debates overlap. Chapter 5 represents the conclusion that sums up the insights of this dissertation and makes propositions as to the future of trust research.
The present dissertation does not comprise all of the projects on which I worked during the last years. Together with Simon Munzert I published the study "*Political Depolarization in German Public Opinion, 1980-2010*" which won the 2014 prize of the German General Survey. Together with Markus Freitag I co-authored the book chapter ''*Was uns zusammenhält : Zwischenmenschliches Vertrauen als soziales Kapital der Schweiz*" in 2014. Moreover, three studies on which I worked, which are not part of this dissertation, are currently under review: The book chapter "*Political Trust in Switzerland: Again a special case?*" co-authored with Markus Freitag and Pascal Sciarini, the article "*Personality and the Foundations of Social Trust*" co-authored with Markus Freitag and the article "*Vague Concepts in Survey Questions: A General Problem Illustrated with the Left-Right Scale*" co-authored together with Kathrin Ackermann, Pablo Barberá and Aaron Venetz. On different occasions I refer to these works throughout this dissertation.
This document has been typeset using LaTeX. The statistical analyses were conducted using *R*, *STATA* and *MPLUS*. Do-files and data are available for replication.

# 1 Introduction

"***Confidence, evidently, is one of the most important synthetic forces within society***" **(Simmel 1908, 346)**

"***Without the general trust that people have in each other, society itself would disintegrate***" **(Simmel 1900, 149)**

## 1.1 Trust, a relevant but challenging concept

Already in the beginning of the 20th century, the sociologist Georg Simmel (1908, 1900)[1] observed that trust is a fundamental ingredient of social relationships. In everyday conversations we use the concept to discuss whether other persons can be relied on to behave in ways we expect them to. For instance, we could ask ourselves if a mechanic can be trusted to repair our car, we might discuss whether a certain friend can be trusted to keep a secret to himself or whether a certain teacher can be trusted to prepare us well for an exam. Trust is linked to behavior and has an impact on various decisions we take throughout our lives. Only if we possess a certain level of trust, will we lend our car to our neighbor, share secrets with friends or invest our money in certain stocks. For a social scientist it is rewarding to work on a concept that almost everyone can relate to. Non-scientists normally show a particular interest in this field. In discussions everyone will come up with a personal experience that is related to trust, which confirms that the idea of trust accompanies individuals throughout their lives.

It is trust as a *fundamental prerequisite for cooperation* that is most interesting from a societal point of view. Groups of individuals – and essentially a society is a group of individuals – can economize vast resources if its members cooperate and exchange goods. For instance, two neighbors may save costs when they decide to share a set of tools.[2]

[1] Above quotes were taken from translations of Simmel's work (cf. Simmel 2004, 177f, Simmel 1950, 318). In the English translations the German word "Vertrauen" is sometimes translated with confidence and sometimes with trust depending on the context (Simmel 1950, 345).

[2] Essentially, this is the idea of sharing economy and the idea behind initiatives such as "Pumpipumpe" that aims at facilitating exchange between neighbors (Hofer 2014).

Scaling this idea up to the societal level, one can argue that a society benefits because cooperation frees time and resources that can be used elsewhere. However, only when I trust my neighbor to handle our set of tools with care, will I agree to the sharing agreement and, therefore, cooperate with him. In some situations we trust others because we assume that they have internalized certain norms that make them trustworthy. Following Hardin (2002, 29) such reasons might be called a trustee's internal motivations.

However, in nowadays societies we have designed all sorts of institutions to incentivize people to behave trustworthily (e.g. Freitag and Traunmüller 2009; Herreros 2004). These institutions allow us to trust others even if we do not believe in a person's "inner" motivation, namely because these institutions serve as an external motivation to behave trustworthily (e.g. Hardin 2002, 40). Buyer-seller relationships represent an classic example. In many cases trustworthiness in these relationships – and our trust as a consequence – will be assured through a functioning, efficient and effective law enforcement system. In other words, we will have a certain level of trust that is necessary to buy a product because we assume that the vendor is aware of possible sanctions if he acts untrustworthily.[3]

However, we have to be careful in portraying trust as *normatively desirable*. It is not desirable that individuals naively trust their peers and get repeatedly cheated by them as a consequence. It is also not desirable that citizens naively trust their political leaders, while these enrich themselves personally rather than working in the public's interest. Hence, from a normative point of view, it is not trust but rather *trustworthiness* which is the desirable attribute of individuals living in a society.[4] In other words, it is good for a society if its members intend "to honor their commitments and avoid harming others" – to cite a popular definition of trust that implicitly also defines trustworthiness/trustworthy behavior (Glanville and Paxton 2007, 231, Barber 1983, Yamagishi and Yamagishi 1994). High levels of trust will only generate desirable outcomes in societies in which levels of trustworthiness are also high. In societies in which members commonly cheat others and take advantage of them, low trust seems desirable in that it might lead to attempts to exclude the untrustworthy and to install and maintain institutions that ensure higher

[3] In Section 1.2.1 I comment on the important insight that sanctions and contractual law DO NOT function as a replacement of trust (see e.g. Seligman 1997 for this position). In my view we should not confound trust as, e.g. the *expectation that a vendor sells me a functioning product*, with trust as the *expectation that a seller sells me a functioning product out of personal goodwill*. In other words, lines of thought on which my trust judgment may be founded do not belong to the concept itself. I might trust another person to behave in a certain way for various reasons that might include both the trustee's internal and external motivations to use Hardin's (2002) terms.

[4] Hardin (2002, chap. 2) illustrates that many "trust arguments" concern trustworthiness rather than trust.

levels of trustworthiness in the long run.[5]

In many contexts individuals entertain trusting relationships, i.e. they trust and behave trustworthily within subgroups such as their family, their ethnic community or their social class. Here, trustworthiness and trust are limited to a certain circle of people. For instance, familism, i.e. trusting and identifying yourself only with your family is seen as one of the cultural obstacles to development.[6] In such societies "[w]hat is outside the family is at best inconsequential, at worst an enemy" (Harrison 2000, xxvii). Members of a society that is characterized by strong familism will take advantage of others, i.e. act untrustworthily towards third persons in order to help their family members if necessary. As a consequence, cooperation and exchange will principally occur within family networks that is subgroups of society.

Ideally, a modern society is not divided into subgroups. In the "ideal" society individuals would act trustworthily towards others regardless of group affiliations. As a consequence, individuals would be able to trust others independently from their background and barriers preventing cooperation would be low, not only within subgroups as is typically the case, but also among strangers.

Empirical data suggest that the Scandinavian countries come closest to this ideal (e.g. Delhey and Newton 2005). These countries are ranked at the top when relying on self-report measures of trust but also when it comes to potential indicators of trustworthiness such as crime or corruption statistics. It is here that trusting seems to be a good strategy because high trust levels and resulting trusting behavior is answered by cooperation at least most of the time.

Given above elaborations it is not surprising that trust is a popular concept in the social sciences. Many influential and widely cited books in the social sciences focus on the concept itself (e.g. Barber 1983; Eisenstadt and Roniger 1984; Gambetta 1988; Hardin 2002; Luhmann 1979; Misztal 1996; Nooteboom 2002; Rawls 1971; Seligman 1997; Sztompka 1999; Uslaner 2002). Similarly, studies that focus on other concepts such as administrations, civil society, social capital or justice repeatedly mention the concept of trust because it is such an essential ingredient to social science arguments (see e.g. Blau 1964; De Tocqueville 2002; Giddens 1991; Putnam 1993; Schelling 1980; Weber 2005, just to name a few selected titles). Nowadays, the field of trust research is vast and spans

[5] Building institutions that incentivize others to behave trustworthily requires cooperation. In some groups trust might be too low to initiate such a process. A minimum level of trust is necessary to start a cooperative relationship in the first place. Trust, in turn, is strongly contingent on trustworthiness. As a consequence groups (e.g. societies) characterized by low trust and trustworthiness are sitting in a trap that is hard to escape (Rothstein 2005).

[6] See Ermisch and Gambetta (2010) for a related study.

various disciplines. Yet despite the knowledge that has been generated in this field and the brilliance of various theoretical accounts, research on this concept also suffers from certain shortcomings and resulting negative effects.

First, there is a vast number of definitions of trust and many of them are elusive and ambiguous, a situation many scholars lament (e.g. Bigley and Pearce 1998; Hardin 2006; Hoffman 2002; Hosmer 1995; Lewicki and Bunker 1995; Luhmann 1988; McKnight and Chervany 1996; Nannestad 2008; Shapiro 1987). Table A1 gives an overview of some of the more influential definitions.[7] This condition makes it very difficult to structure and compare existing research.[8] As a result of conceptual vagueness, theories connecting trust to other phenomena are often vague and blurred. Various scholars have coined different trust subconcepts such as "particularized trust", which further adds to the confusion.

As a consequence debates that evolve around trust are often at cross-purposes as two recent examples show. The first debate concerns the forms of political trust. This debate hinges on a conceptual misunderstanding since Fisher, van Heerde and Tucker (2010, 2011) differentiate forms of trust according to the considerations on which political trust – understood as expectation – may be based. For instance, people might have a certain level of trust because they believe that they are protected through institutions of law enforcement. Hooghe (2011), in contrast, differentiates forms of political trust according to the trustee at whom the expectation is directed, such as a parliament or a government. He finds that respondents do not distinguish between different institutions. Hence, it is not surprising that the respective authors disagree on whether one can differentiate between forms of political trust or not. The second debate concerns the term "trust radius". The authors in this debate conceive trust in the same way, namely as an expectation. However, Delhey, Newton and Welzel (2014, 2011) use the term radius to describe that respondents might have a different radius of people in their mind while answering trust questions. van Hoorn (2014), in contrast, follows the classical meaning as suggested by Fukuyama (2001). Here, the trust radius encompasses different trustees in which the truster has specific but varying levels of trust.

Second, definitions of trust that we find in empirical research are often followed by completely detached measurement, hence, there is a lack of concept-measurement consistency (Goertz 2006, 95). As a consequence, empirical tests of theories that relate trust to other concepts are often debatable, since they do not really test those theories but rather empirical relationships between measures of something else.

[7] "Influential" here simply understood as widely cited.

[8] See Bromiley and Cummings (1995); Hosmer (1995); Lewicki and Bunker (1995); McKnight and Chervany (1996); Mishra (1996); Sitkin and Roth (1993) for noteworthy attempts to typologize research on trust.

## 1.2 Deriving a conception: What is trust?

Given the above described problems this dissertation is bound to start with the question: *What is trust?* I proceed by identifying notions that reappear across the most influential definitions that were coined by different authors. Departing from these notions I derive a definition of trust.

First, several notable scholars agree on the fact that trust plays a role in situations that can be described referring to *three elements* (Baier 1986, Hardin 2002, Hardin 1992, 154, Luhmann 1979, 27, Sztompka 1999, 55): For instance, Baier (1986) points to the importance of differentiating between different trustees and the expected behavior in this relation, thus, "taking trust to be a three-place predicate (A trusts B with valued thing C)" (Baier 1986, 236). Slightly reformulated, when speaking about trust we essentially speak about a truster A that trusts, i.e. judges the trustworthiness of a trustee B with regard to some behavior X.[9] Turning this statement around we may speak of a trustee B who is trustworthy with regard to some behavior X and a truster A. These three parameters ABX suffice to define the concept of trust and may be replaced with different real-life trustees and behaviors. Moreover, this formulation illustrates that a differentiation between trust and trustworthiness is of fundamental importance. Even "when there is no call for trust, a person or institution can possess the attributes of trustworthiness" (Levi and Stoker 2000, 476), i.e. a trustee can be trustworthy independent of the level of trust the truster has in him.[10]

Second, trust can be conceived of as a *probability*. The idea of *trust as a subjective probability* – as a degree of belief – seems fairly clear (cf. Hoffman 2002, 379). Several authors directly refer to "probability" in their definitions. For instance, Gambetta (1988, 217) asserts that trust "is a particular level of the subjective probability with which an agent assesses [...] another agent". Similarly, Offe (1999, 47) writes that trust is a belief that "refers to probabilities that [...] others will do certain things or refrain from doing certain things". Dasgupta (1988, 62, 65-66) uses the example of a customer who is unsure whether a salesman is trustworthy or untrustworthy and "imputes a (subjective) probability $p$ to

[9] The term behavior also encompasses passive behavior or non-behavior such as refraining from robbing someone or stealing a bike (e.g. Offe 1999, 47). Instead of simply using the term "behavior", Sztompka (1999, 55) uses the term content, but X has also been called the "domain" by Levi and Stoker (2000, 476). Below, the synonymous expressions "behave trustworthily" and "be trustworthy" are used interchangeably. The same is true for "expectation" and "judgment".

[10] Certainly, one could add further parameters such as context S – e.g. a certain neighborhood – however, that would unnecessarily increase the complexity of an otherwise parsimonious statement. Additional parameters should rather be seen as causal factors that explain trust and, thus, do not belong to the concept itself. In this regard, abstraction and simplification from complex reality is a necessity in deriving a useful conception.

the salesman being honest". Coleman (1990, 99) does not explicitly define trust as a subjective probability, however, he develops a formal model for the "placement of trust" in which the mentioned subjective probability appears as an expectation. The above definitions are widely cited by other scholars in the field who seem to have embraced the idea of trust as a probability, a probability that quantifies the subjective belief that a trustee will behave trustworthily. The idea of trust as a subjective probability has also been criticized (e.g. Nooteboom 2002, 39-41). First, if the subjective probability is *1*, no risk is left which seems to be an essential characteristic of the concept of trust. However, even when a person reports that he/she trusts someone 100%, this person still reports an expectation regarding a future event. Hence, even if this person is certain (= 100%) there is always the objective risk that his/her expectation is wrong. Second, the idea of subjective probability might seem too rational and calculative to describe expectations by humans (Nooteboom 2002, 41, 42). Importantly, by defining and measuring trust as subjective probability we do not make any assertions regarding rationality. On the contrary: Individuals' judgments may be wrong and also systematically biased. Besides, if we assume that a scale from 0 to 100 is too fine-grained we can always use a scale with fewer scale points. Essentially, respondents do not seem to have problems in expressing simple expectations in probabilistic terms (Clinton and Manski 2002).

Third, there is a *temporal dimension* to the concept. A general characteristic of the concept of trust is that it refers to expectations about future behavior. Many authors have defined trust in this way, even if their definitions differ in many other respects (see, e.g. Bacharach and Gambetta 2001, 150, Baier 1986, 235, Barber 1983, 8-9, Dasgupta 1988, Gambetta 1988, 217, Hoffman 2002, 378, Luhmann 1988, 97, Mayer, Davis and Schoorman 1995, 712, Offe 1999, 47, Sztompka 1999, 25). Hence, normally trust describes (potentially wrong) expectations about a trustee's future behavior. In our theories we have to be very explicit and clear regarding the temporal dimension. We have to specify whether we theorize about a truster's expectations that concern the future or about the expectations a truster might have had in the past. Our future expectations, i.e. trust judgments, are often related to past expectations that are revised after collecting relevant experiences.

Fourth, trust is generally linked to behavior that has a positive value for the truster (e.g. neighbor returning borrowed money; friend keeping a secret; car not breaking down). In other words, trust rests on the premise that *A has a preference with regard to behavior X*. A prefers that B displays trustworthy behavior $X_T$ rather than untrustworthy behavior $X_{\neg T}$. By adding this assumption trust is set apart from simple expectations. This idea is reflected in many accounts of trust. Mostly, because authors refer to the fact

that trust is related to the *interest* of the truster (e.g. Hardin 2002; Levi and Stoker 2000; McKnight and Chervany 1996). Other authors do so more implicitly in that they restrict the behavior of the respective relationships to behavior that should normally be against the interest of the truster. For instance, Rotter and Stein (1971) refer to lying or deceiving others. Eventually, I would suggest to avoid the term *interest* since it is the subjective nature of preferences that matters in trust situations. A trustee could act in a friend's objective interest (lie to him for his own good) but the friend would still feel betrayed if the trustee acts against his subjective preference. Finally, it can be assumed that preferences are often similar across As, i.e. most people have the same expectation of a trustee in similar situations. For instance, everyone prefers a friend to keep a secret if asked to do so.[11]

Fifth, *trust is at stake in all sorts of cases* and scholars of various disciplines differ in their focus with regard to the trusters (As), trustees (Bs) and behaviors (Xs). Most commonly social scientists investigate trust judgments by individuals (= trusters) generally, but they also focus on more specific groups of trusters such as patients (Mechanic and Schlesinger 1996), criminals (Gambetta 2006) and taxi drivers (Gambetta and Hamill 2005). Similarly, trustees in empirical research encompass the police or courts (Tyler and Huo 2002), political parties and partisans (Carlin 2014; Carlin and Love 2013), sellers (Doney and Cannon 1997), science and technology (Roberts et al. 2013) and investments (Bottazzi, Da Rin and Hellmann 2011) just to name a few. Finally, researchers investigate trust judgments that concern a wide variety of (un)trustworthy behaviors (Xs) regarding which trustees are assessed. An applicable and general conception has to be flexible enough to encompass diverse behaviors as well as non-human trustees. This can be achieved by *keeping the abstract placeholders ABX* in our conception and *replacing them with specific content depending on our research question.* As social scientists we can probably agree that A should encompass single individuals or groups of individuals. B, in turn, should be a placeholder that can be filled with different content, certainly single individuals and groups of individuals (e.g. a government), but also with physical objects (e.g. a dice, a car, a plane) or institutions (e.g. a certain law, democracy as a set of institutions, the legal system).[12] X, in turn, may refer to behavior of different sort, such as "does not steal my bike", "protects the human rights" and "will not crash".

[11] Is it important that the trustee is aware of the truster's preference? (cf. Hardin 2002) In my view it is not important. It would force us to refrain from using the concepts when discussing trust in and trustworthiness of objects such as a car.

[12] In contrast to Hardin (2002) who clearly excludes "abstract" trustees such as governments in his "encapsulated interest view" of trust, I suggest trust and trustworthiness should be conceptualized without this restriction.

This flexibility is useful as long as researchers clearly state the substance of the elements ABX, that is the cases they investigate.
To sum up, cases of trust can be described by *three elements* (A = truster; B = trustee; X = behavior) and concern *behavior* to which a *preference by the truster* A is attached. The concept designates a *probability*, namely the truster's subjective estimation of the probability that the trustee will display *trustworthy behavior*. Besides, a useful conception should be flexible enough as to encompass all sorts of cases, i.e. have a *broad extension*. These characteristics may be used to derive a unified definition:

> *Trust $P_A$ is A's subjective estimation of the probability $P_B$ that B displays behavior $X_T$ preferred by A rather than $X_{\neg T}$.*

Both $P_A$ (= *trust*) and $P_B$ (= *trustworthiness*) potentially depend on all three elements of the relation (ABX) and, as probabilities, $P_A$ and $P_B$ may take on values from 0 to 1. Moreover, $P_A$ is not necessarily related to $P_B$ since A may over- or underestimate B's trustworthiness. Besides, trust is an attribute of truster A whereas trustworthiness is an attribute of trustee B.
The term *subjective* emphasizes that A's trust judgment may be wrong and deviate from some objective probability. We can measure trust by directly asking someone whether he thinks that a trustee will be trustworthy in the future or what his past expectations were in this regard. We can measure trustworthiness as past behavior (by observing a trustee's behavior or by querying him/her about it) or as future behavior (only by querying him/her about it). However, various scholars have criticized self-report measurement of trustworthiness pointing to the issue of social desirability (e.g. Ermisch and Gambetta 2011, 3).

### 1.2.1 Resulting conceptual clarifications

The above described conception clarifies several important conceptual issues that need to be reemphasized at this stage: First, the above understanding establishes that *trust is an expectation and not a decision or a behavior.*[13] Hardin (2002, 58-60) regards this position as "trivially evident", however, researchers often mix expectations and ensuing decisions or behaviors in their theories and definitions. Since trust is an expectation about future behavior, it is not necessary that some exchange or action took place. "Trusting behavior" (Barr 2003), e.g. A lending 20 euros to B, may be the consequence of a certain level

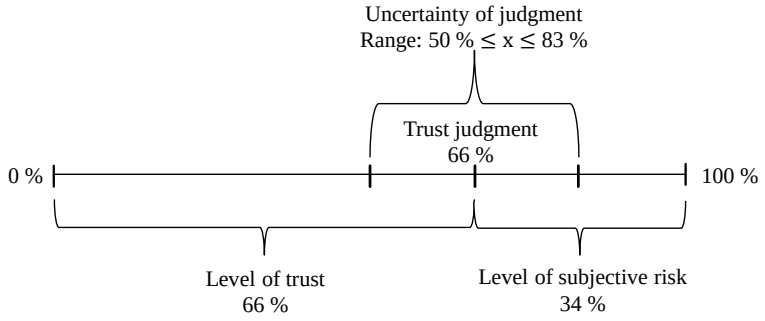
[13] Interestingly, measuring trust as an expectation requires subjects to choose, i.e. to decide about points on a trust scale.

of trust, i.e. the subjective probability the truster estimates (e.g. $P_A > 0.7$). Sometimes, however, alleged "trusting behavior" is not due to a high level of trust but rather due to coercion, indifference or simply the absence of other behavioral options. This conceptual clarification also highlights that theories about trust are not decision theories such as the "expected utility theory" or the "prospect theory" that take into account various other aspects such as the costs of different choices. It also highlights that trust does not equal cooperation and should probably not be measured as such (cf. Cook and Cooper 2003).
Second, we may treat *trust and confidence as synonyms.* However, there is some disagreement regarding confidence in the literature. Following Luhmann (1988, 97) and Deutsch (1960, 124) one can sensibly argue that the term confidence represents a narrower understanding of trust, namely the case in which the trust judgment exceeds a certain threshold (e.g. $P_A \geq 0.8$). Confident individuals are individuals with a high level of trust. Luhmann (1988, 97) writes: "If you do not consider alternatives [...], you are in a situation of confidence". Deutsch (1960, 124) describes confidence as "the individual's assumption that the event he desires rather than the event he fears will occur". Thus, an individual with "low confidence" would still be located somewhere in the upper range of the trust scale (e.g. confidence could range from 0.5 to 1 on the trust scale). To avoid these conceptual pitfalls we should stick to the term trust.[14]
Third, in contrast to Cook, Hardin and Levi (2005, 33f), Hardin (2002, 89f) and Lewicki and Brinsfield (2012) I argue that it does not make sense to treat trust and mistrust/distrust as two distinctive concepts.[15] Similarly to Gambetta (1988), Luhmann (1980) and Carlin (2014) I suggest to treat *mistrust/distrust as antonym for trust*, only that the scale is reversed. For instance, if we ask "How high is the probability that the government will successfully deal with the economic crisis?", then the lower an individual's estimated probability (e.g. $P_A = 0.3$), the higher is his level of mistrust and the lower his level of trust.[16] If the probability is low we would expect individuals to behave in ways that suspicious, distrustful individuals do. For instance, A will not lend B any money if he assumes that B is unlikely to return the money. Thus, it seems to make sense to measure trust and distrust/mistrust on one single (probability) scale.
Fourth, *risk and uncertainty can be defined in relation to trust and trustworthiness.* First, corresponding to the two concepts there are two types of risk that are simply the com-

[14] Interestingly, Simmel's use of the German word "Vertrauen" is translated with both the English words "confidence" and "trust" (see Footnote 1). Hence, in German this distinction is less relevant.
[15] See also Lagace and Gassenheimer (1989), Omodei and McLennan (2000) and Wrightsman and Wuescher (1974)
[16] We could also reformulate this question so that it is a low subjective probability $P_A$ that refers to behavior preferred by A. Then, the higher a truster's probability estimate, the higher his level of mistrust/distrust.

plementary probabilities of $P_A$ and $P_B$ respectively. $R_A = 1 - P_A$ is the subjective risk of the truster A. When Peter has a high level of trust in someone to, e.g. return a purse that he lost, he estimates the risk that the trustee will not bring back the purse as very low, e.g. $R_A = 1 - P_A = 0.1$ (see Figure 1.1). The same is true for trustworthiness: $R_B = 1 - P_B$ is the objective risk complementary to the probability that someone will behave trustworthily. Second, individuals may be uncertain about their judgment of a trustee B which can be expressed by an uncertainty interval around the trust point estimate as depicted in Figure 1.1. In situations in which we do not have any information about a trustee B or in which we do not have any preconceptions about factors that should influence B's trustworthiness with regard to X, we may find ourselves unable to give any precise estimate. At its extreme this can be expressed by a large uncertainty interval that covers the whole trust scale going from 0 to 100 % (or 0 to 1).

Figure 1.1: Trust, risk and uncertainty




Fifth, trust as an expectation is based on *lines of thought and emotions* ($C_A$) that influence A's estimate. These factors $C_A$ do not belong to the concept of trust itself, but should rather be seen as causal elements that explain variance in expectations, i.e. probabilities estimated by different trusters. $C_A$ is related to ABX in that different trusters A potentially rely on different $C_A$s that also vary as a function of B and X. For instance, when boarding a plane we might trust the pilots because we assume that it is in their self-interest not to cause a plane crash. When judging the trustworthiness of a family member or a close friend emotions may bias our otherwise more critical judgment (cf. Hoffman 2002; Michel 2013). Depending on their personal attributes some trusters may focus on the moral values that they think B possesses, whereas other trusters may consider the potential sanctions that B might be subject to. Likewise, some As may rely on more complex trains of thought, while others might rely on simplistic heuristics ("individuals with long hair can not be trusted"). But we may also find that most trusters rely on

similar $C_A$s. In the end all individuals come up with an expectation, i.e. a certain level of trust even if the process to arrive at this judgment is a different one. Confounding trusting expectations with the lines of thought and emotions on which these expectations are based is a relatively common problem in the trust literature. Moreover, scholars often invent new trust subconcepts to refer to trust judgments that are based on different Cs. See for instance Fisher, van Heerde and Tucker (2011, 2010) as cited in Section 1.1 or Uslaner's 2002 definition of moralistic and strategic trust in Section 1.2.2.

### 1.2.2 Subconcepts of the overall trust concept

The general concept of trust has seen several conceptual offsprings. Figure 1.2 traces the popularity of different trust subconcepts based on a simple word search across recent Jstor (Burns et al. 2009) and Google Books (Michel et al. 2011)[17] publication data. The graphs illustrate that the number of publications has increased massively since the 1990s and that there was a surge of research on political trust in the 70s. We can also see that trust research was conducted simultaneously under different labels, i.e. on different trust subconcepts. Table A1 in the appendix contains definitions for these subconcepts. In this section, I outline how the different subconcepts can be subsumed under the general conception of trust presented in Section 1.2.

In essence, most of the trust subconcepts that were coined during the last decades represent special cases that fall under the formalized conception outlined in Section 1.2. Mostly, they simply specify A, B or X in a particular way. Sometimes they refer to specific Cs.

As can be seen from Figure 1.2, the most frequently used concepts are *social trust* and *interpersonal trust* that are synonymous. In both cases the trusters as well as the trustees comprise individuals or groups, so A & B = humans. In most applications of these concepts, X is not clearly specified. In more specific definitions such as by Rotter (1967) (interpersonal trust), trustworthy behavior is more clearly defined. Another widely used concept is *political trust* designating cases in which the trustee belongs to the political sphere. Hence, B can be any political actor such as a parliament, a government or a party.[18] More specific definitions of political trust such as the one formulated by Hetherington and Husser (2012, 313) restrict the trustee B to "governments" and the expected

[17] The search was conducted using the package ngramr within the English Corpus of Google Books (eng_2012).

[18] In the strict sense political trust is also a form of social trust in that institutions are made up of persons.

behavior X to "performing well".[19]

*Particularized trust* which is often regarded as the "opposite" of generalized trust (see discussion in the next paragraph), is defined as "[p]lacing faith only in our own kind" (Uslaner 2002, 28). Hence, B encompasses "people of your own kind", however, it is not really clear who falls into this category. Sometimes particularized trust is equated with *knowledge-based trust*, a term coined by Yamagishi and Yamagishi (1994, 139) that describes trusting expectations that are "limited to particular objects (people or organizations)". Similarly, *thick trust* and *thin trust* categorize trustees B into groups according to the social distance they exhibit with regard to the truster (Putnam 2000, 466). There is also the concept of *identity, group or category-based trust* (see e.g. Brewer 1981; Freitag and Bauer 2013; Kramer 1999; Stolle 2002; Tajfel 1974; Tajfel and Turner 1979). Here, the principal idea is that one might have a higher level of trust towards individuals with whom one shares a common category, e.g. A might trust B because B is from the same village. Finally, Uslaner (2002) contrasts *moralistic trust* with *strategic trust*. The former is "a general outlook on human nature and mostly does not depend upon personal experiences or upon the assumption that others are trustworthy, as strategic trust does" (Uslaner 2002, 17). The main difference between these two trust subconcepts is the idea that they are expectations based on different thoughts or emotions $C_A$. Besides, the trustee B in moralistic trust are humans in general, but specific persons in the case of strategic trust.

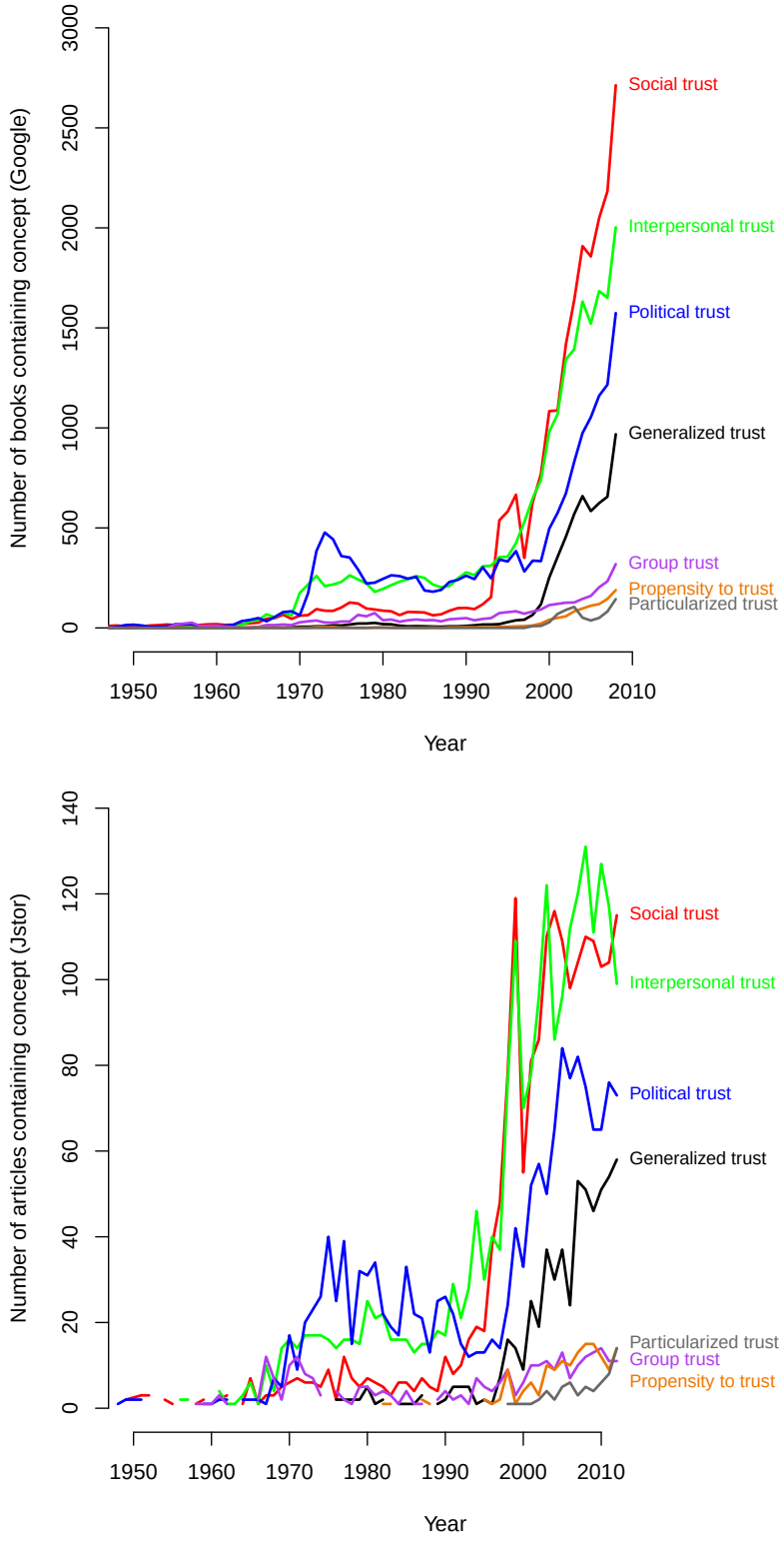
In sum, the various subconcepts coined by different authors represent special cases of the conception suggested in Section 1.2. Most trust concepts simply specify one of the elements ABX or $C_A$ more restrictively, for instance B as humans in *social trust*. Hence, the corresponding cases can be described systematically departing from our general conception.

The concept of *generalized trust* is a special case. Similarly to trust, generalized trust has been defined in various ways (e.g. Bjornskov 2006; Nannestad 2008; Stolle 2002; Whiteley 2000). The fundamental idea seems to go back to the concept of *basic trust* (Erikson 1959). Erikson (1959, 57) regards the "sense of basic trust" as a component of a healthy personality, as "an attitude toward oneself and the world derived from the experiences of the first year of life".[20] In another seminal work Rotter (1967, 653) suggests that individuals possess a "generalized expectancy" regarding others. Among others *general-*

[19] The original definition relates citizens' performance evaluations to their normative expectations. Operationalization is difficult since it requires measuring both individuals' normative expectations and their performance evaluations (Seyd 2011).

[20] Erikson (1959, 65) suggested that the task of building a sense of basic trust is foremost a task of maternal care.

Figure 1.2: Popularity of different subconcepts of trust (Google books and Jstor)



*ized trust* has been defined as trust in most people (Uslaner 2002, 5) and as a standard estimate or a general optimism regarding others' trustworthiness (Glanville and Paxton 2007, Rathbun 2011, 248). Generalized trust is also closely linked to some other trust subconcepts, namely the concept of *propensity to trust* or *trait trust* which is regarded as a facet of agreeableness, one of the "Big Five" personality traits in personality research (Colquitt et al. 2007, McCrae and Costa Jr 2003, Mooradian, Renzl and Matzler 2006, 527).[21] And the concept is very similar to Coleman's (1990, 104) idea that a person has a "standard estimate of the probability of trustworthiness, p*, for the average person he [or she] meets".[22]

The conception provided in Section 1.2 clarifies that generalized trust describes an expectation directed at the general category of humans (= B) and is not related to a specific expected trustworthy behavior X. It is a general subjective estimate that others will behave as one expects them to. One could conceive it as a basic starting level from which specific situational trust judgments deviate in different directions. To this date, scholars debate to what extent generalized trust is conditioned during childhood or is revised through experiences at later stages in life.

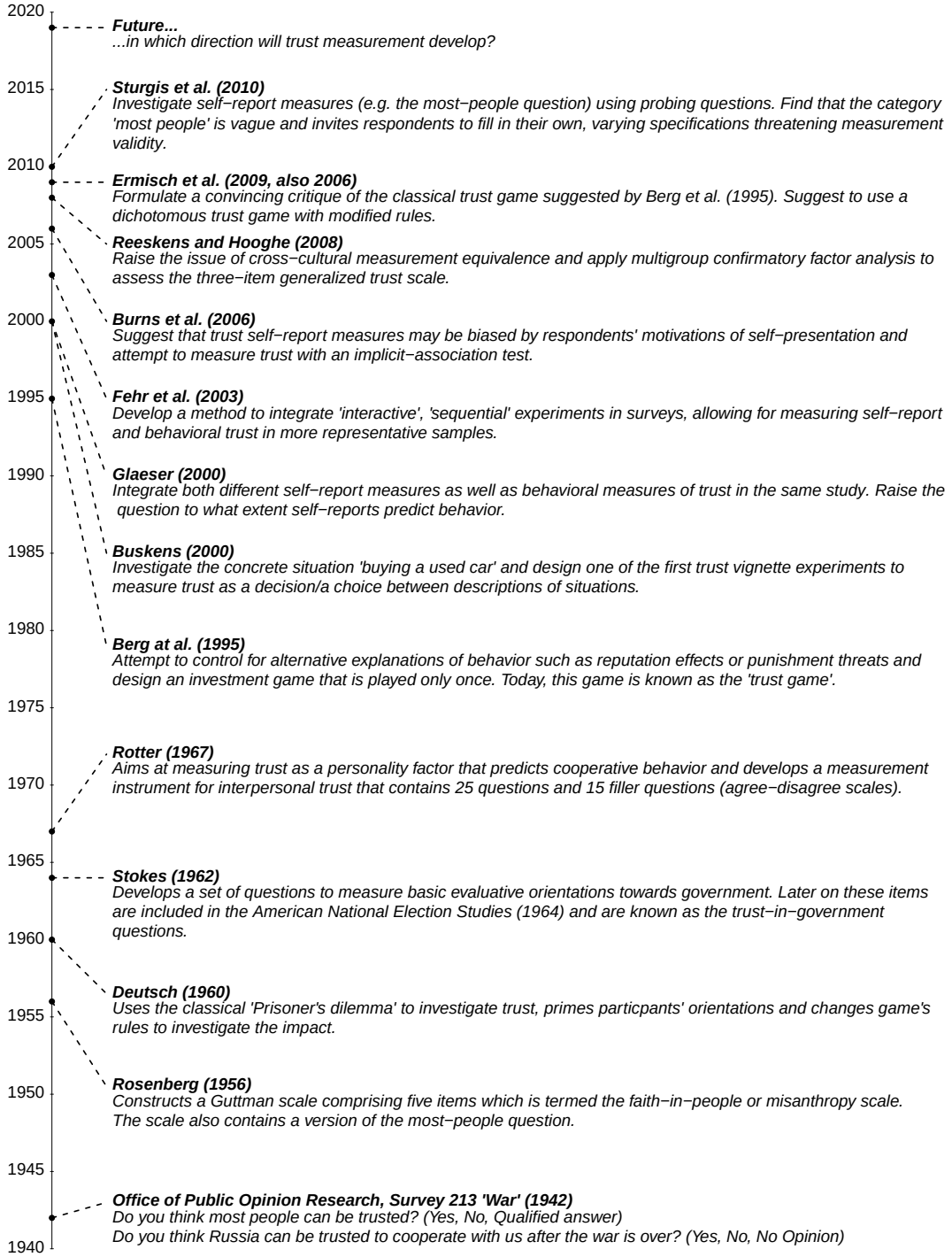
## 1.3 A short history of trust measurement

In the previous section I tried to answer the question *What is trust?* drawing on the vast conceptual literature on trust. The logical follow-up question is: *How do we measure trust in empirical research?* In order to be able to locate the research of the present dissertation within the broader field of empirical trust research it is helpful to provide a quick overview of the developments within trust measurement. Measurement can be seen as a topic of its own, especially, since many measures did not originate from a sophisticated conceptual literature. Below, I want to focus on innovations in measurement which mostly took place within the last two decades. This is not surprising, given that trust research has received an enormous boost in the wake of the popularization of the concept of social capital (see Figure 1.2). I am convinced that it is in the area of trust measurement that

[21] *Generalized trust* is also similar to *general trust* a belief in the benevolence of human nature (Yamagishi and Yamagishi 1994, 136).

[22] However, we have to keep in mind that this is not Coleman's definition of trust that is in essence a behavioral one.

Figure 1.3: Timeline of trust measurement



we are likely to see the biggest developments in the near future. In the conclusion in Chapter 5 I will further comment on this important insight of my dissertation.[23]

Trust measurement – and here I focus on its systematic measurement across a large number of units – started in the first half of the 20th century.[24] The timeline in Figure 1.3 gives an overview of the developments described below. Broadly, one can differentiate between two approaches to measuring trust: We can either ask people directly (self-report measures) or observe their behavior/decisions (behavioral measures).

Self-report measurement predates behavioral measurement in lab experiments and started in the 40s. I found the first record of the *most-people trust question*[25], the most popular measure of trust, in a questionnaire from 1942 (see Figure 1.3).[26] Hence, we can even set the date a bit earlier than Sturgis and Smith (2010, Footnote 1). Importantly, in its earliest form the most-people question has not been introduced by Elisabeth Noelle-Neumann or by Almond and Verba (1963) as suggested by some authors (e.g. Algan and Cahuc 2013; Tao et al. 2014; Uslaner 2012).[27]

The most-people question is often attributed to Rosenberg (1956) who, to my knowledge, was the first to construct a systematic measurement instrument. Also Rosenberg (1956, 690) may have coined the balanced version of the most-people question: "*Some people say that most people can be trusted. Others say you can't be too careful in your dealings with people. How do you feel about it?*". Rosenberg (1956) combined multiple items and

[23] Existing reviews do not focus on measurement and and do not cover more recent developments. For instance, Cook and Cooper (2003) focus on experimental studies, Nannestad (2008) focuses on generalized trust and Levi and Stoker (2000) on political trust. For more or less complete reviews one can also consult different books that have been written on trust and discuss empirical measurement such as Hardin (2002), Nooteboom (2002), Sztompka (1999) and Uslaner (2002). Besides the focus on measurement, I want to zoom out and overcome the "de-facto "separation" of the research communities who are either doing survey or experimental research in the social sciences" (Fehr et al. 2003, 4, Footnote 3).

[24] In his review article on generalized trust Nannestad (2008, 416) distinguishes between three methods of measurement: Experiments, surveys and anthropological observation with thick descriptions. I focus on the former two.

[25] Throughout this dissertation I use the term *most-people (trust) question* to refer to this classic measure of the concept of generalized trust: *Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?* Importantly, over the last decades this question has appeared in various forms, with various answer scales.

[26] I scanned through various questionnaires that were accessible online through the Roper Center Public Opinion Archives. The respective survey contains the questions: "*Do you think most people can be trusted?*" and "*Do you think Russia can be trusted to cooperate after the war is over?*" (cf. Walsh 1944) Respondents could answer Yes or No in either case (or give a qualified question to the most-people-question) (Office of Public Opinion Research 1942).

[27] This insight is based on an email exchange with Thomas Petersen of the Allensbach Institute which was founded by Elisabeth Noelle-Neumann. Starting in 1948 trust questions where also asked in the National Opinion Research Center (NORC) Surveys (Klapper 1955).

constructed a faith-in-people Guttman scale.[28] Ultimately, Rosenberg (1956) was interested in the relationship between "faith in people" and individuals' political ideologies, evaluations of political systems as well as views on specific political questions. Later on, Rosenberg's questions were used by Almond and Verba (1989, 213) (1963) in their seminal comparative study on the civic culture. To this date researchers investigating social trust continue to use modified versions of these questions. One important reason is that these questions are included in various important longitudinal surveys such as the General Social Survey (GSS) starting in 1972, the American National Election Studies (ANES) starting in 1964 as well as some important comparative surveys such as the European Social Survey (see e.g. Uslaner 2002, 6, Footnote 2).[29]

Some years later, Deutsch (1960) published his study "The Effect of Motivational Orientation upon Trust and Suspicion". In contrast to Rosenberg who uses self-report measures, Deutsch (1960) observes participants behavior while letting them play the prisoner's dilemma in a laboratory setting (see Cook and Cooper 2003 for a very good summary of Deutsch's work). In doing so, he uses a behavioral measure and, essentially, measures trusting behavior.

If we conceive trust as an expectation, the corresponding expectation in the prisoner's dilemma would be a (probabilistic) judgment of the other prisoner's likelihood to cooperate or not. This judgment is certainly an important factor entering a player's decision whether to defect or cooperate.

In fact, Ermisch et al. (2009, 751) mention the "expectation that the trustee will do X, framed in terms of a probability" (Ermisch et al. 2009, 751) as one component that leads to the decision to trust, i.e. to trusting behavior. A "person's expectation of the chances of return is strongly related to their experimental trust decision" (Ermisch and Gambetta 2010, 370). Generally and even if not labeled as such, early studies based on game theoretic setups in laboratories such as the one by Deutsch (1960) can be seen as trust research in the widest sense (Cook and Cooper 2003).[30] But Deutsch was one of the first to use the label "trust" for his behavioral experiments.

Levi and Stoker (2000) take the work of Stokes (1962) as starting point to review re-

[28] 1. *Some people say that most people can be trusted. Others say you can't be too careful in your dealings with people. How do you feel about it?*; 2. *Would you say that most people are more inclined to help others or more inclined to look out for themselves?*; 3. *If you don't watch yourself, people will take advantage of you*; 4. *No one is going to care much what happens to you, when you get right down to it*; 5. *Human nature is fundamentally cooperative* (Rosenberg 1956, 690).

[29] These questions also found their way into various important national surveys in other countries such as the German General Social Survey.

[30] Deutsch (1960) did not depart from a very clear conception of trust in his work (Cook and Cooper 2003).

search on political trust. In his study "Popular evaluations of government: An empirical assessment" Stokes (1962) was interested in measuring basic evaluative orientations towards political actors and, accordingly, developed a set of questions. The concept of political trust never figured into Stokes's analysis, later however, his questions came to be known as the trust-in-government questions (Levi and Stoker 2000, 477) and were included in the American National Election Studies (ANES) starting in 1964 (Citrin and Muste 1999, 470, see also Miller 1974).[31] The questions are introduced as follows: "*People have different ideas about the government in Washington. These ideas don't refer to Democrats or Republicans in particular, but just to the government in general. We want to see how you feel about these ideas. For example...*", followed by 5 items to measure trust in government.[32] Thereafter the interest in political trust rose massively triggered by the works of Easton (1965) and Gamson (1968) (Levi and Stoker 2000, 477). In Figure 1.2 (p.13) we can observe a first "spike" in the 1970s around this time reflecting this early popularity. Nowadays, many surveys contain questions that have the following basic structure: "*Using this card, please tell me on a score of 0-10 how much you personally trust each of the institutions I read out. 0 means you do not trust an institution at all, and 10 means you have complete trust. Firstly, the legal system?*" (European Social Survey 2012). Questions are mostly located in batteries and list a number of institutions that can be rated by the respondent.

Another seminal work by Rotter (1967) departs from a relatively clear definition of trust (see Table A1 in the appendix) and develops a measurement instrument for interpersonal trust that contains 25 questions and 15 filler questions.[33] Rotter (1967, see also Rotter and Stein 1971) was dissatisfied with social psychologists' focus on the prisoner's dilemma game and wanted to measure trust as a personality factor that predicts cooperative be-

[31] Citrin and Muste (1999) provide a comprehensive overview of various measurement instruments that tap evaluations of political institutions.

[32] 1. *How much of the time do you think you can trust the government in Washington to do what is right: Just about always/most of the time/or only some of the time*; 2. *Would you say the government is: Pretty much run by a few big interests looking out for themselves/or that it is run for the benefit of all the people*; 3. *Do you think that people in government: Waste a lot of the money we pay in taxes/waste some of it/or don't waste very much of it*; 4. *Do you feel that: Almost all of the people running the government are smart people who usually know what they are doing/or do you think that quite a few of them don't seem to know what they're doing*; 5. *Do you think that: Quite a few of the people running the government are a little crooked/not very many are/ or do you think hardly any of them are crooked at all* (Citrin and Muste 1999, 483).

[33] Examples are: 1. *In dealing with strangers one is better off to be cautious until they have provided evidence that they are trustworthy*; 2. *Parents usually can be relied upon to keep their promises*; 3. *Parents and teachers are likely to say what they believe themselves and not just what they think is good for the child to hear*; Answer scales range from 1 strongly agree to 5 strongly disagree (Rotter 1967, 654).

havior in a wide range of settings (Cook and Cooper 2003, 214).[34] Because Rotter (1967, 653) was suspicious that such games measure competitive behavior, he tested the validity of his scale against socio-metric ratings through student peers of the participants. However, the social trust questions coined by Rosenberg (1956) remained more popular. One reason is certainly that the costs of including one or three trust questions in a survey are considerably lower than including Rotter's sophisticated measurement instrument.[35]

The 70s and 80s did not see any path breaking innovations. However in 1995, Berg, Dickhaut and McCabe acknowledge critique directed at classic games such as the prisoner's dilemma and design an investment game that later came to be known as the classical trust game. Berg, Dickhaut and McCabe (1995) aimed at controlling for alternative explanations of behavior such as reputation effects, contractual precommitments, and punishment threats. In other words, in their experiment the authors aimed at isolating the effect of trust on the observed behavior.[36]

The general structure of the classical trust game is the following: Truster A is given a certain amount of money. A then chooses to send all, some, or none of this amount of money to the trustee (recipient) which is called the "amount sent". The "amount sent" is multiplied by some factor and received by trustee B. A keeps the rest to himself. B, the recipient, chooses to send all, some, or none of the received money back to the sender which is called the "the amount returned" (see, e.g. Ashraf, Bohnet and Piankov 2006, 197, Berg, Dickhaut and McCabe 1995, Camerer 2003, 44, Croson and Buchan 1999; Glaeser et al. 2000). Trust is simply equated and measured with the (average) amount sent across trusters, trustworthiness is equated and measured with the (average) amount returned across trustees. In other words, the more A sends the higher is A's trust, the more B returns the higher B's trustworthiness. To this day, the classic trust game is immensely popular and used extensively, sometimes with slight modifications of the original rules suggested by Berg, Dickhaut and McCabe (1995).

Probably the first to systematically contrast self-report measures with behavioral measures were Glaeser et al. (2000). In their study "Measuring trust", the authors illustrate that "experiments can be integrated with surveys to measure individual-level variation in

[34] Interestingly self-rated trust has long been an item within personality research, generally subsumed under the factor agreeableness (e.g. McCrae and Costa Jr 2003).

[35] Rotter (1980) gives a nice overview of psychological research about interpersonal trust at that time.

[36] See Camerer (2003) for a review of lab game research up to 2003; See Glaeser et al. (2000); Bellemare and Kroeger (2007) for applications, i.e. modifications of the classic game. Participants in these games were found to display "irrationally" high amounts of trust and trustworthiness which challenges the behavioral foundations of micro-economic theory (Ermisch and Gambetta 2006, 3). See Johnson and Mislin (2011) for a meta-analysis of data based on the game suggested by Berg, Dickhaut and McCabe (1995).

traditionally hard-to-measure characteristics such as trust and trustworthiness" (Glaeser et al. 2000, 812). Moreover, Glaeser et al. (2000) show to what extent trusting behavior in the classic experiment – measured with a modified version of the Berg et al. game[37] as well as an envelop drop experiment – is predicted by trust self-reports and self-reports of past trusting behavior.[38] Thereby the authors test a wide variety of self-report measures such as the trust questions included in the General Social Survey[39], the Faith in People Scale (Rosenberg 1956), the Interpersonal Trust Scale by Rotter (1967) and questions querying past trusting behavior. The authors find that self-report measures "of past trusting behavior are better than [the] abstract attitudinal questions in predicting subjects' experimental choices" (Glaeser et al. 2000, 813). However, to this date, evidence on which trust questions are the best predictors of trusting behavior in experiments is mixed (Capra, Lanier and Meer 2008; Ermisch et al. 2009; Fehr et al. 2003).

In another seminal study Buskens and Weesie (2000) investigate a concrete situation that requires trust, namely the situation in which a buyer wants to buy a used car from a car dealer. The innovation in their study lies in measuring trust as a decision by using a survey experiment, i.e. a vignette experiment. Buskens and Weesie (2000) are interested in how far different contextual characteristics impact the decision to buy. One such contextual characteristic could be that the Autoshop is a well-known garage and has many customers in the buyer's neighborhood. The authors assume that "the larger the probability that the dealer abuses trust, the smaller the probability that the buyer will take the risk of placing trust" (Buskens and Weesie 2000, 228). Buskens and Weesie (2000) measure trust as a decision/a choice between two vignettes, i.e. descriptions of situations. Studying trust relying on this and similar methods allows us to investigate the impact of all sorts of hypothetical scenarios on trust judgments (or decisions between vignettes).

Probably the first to integrate a behavioral experiment into a large scale " representative" survey are Fehr et al. (2003). Experiments in which subjects do not interact with each other can be added to surveys more easily. However, the significant step forward provided by Fehr et al. (2003) is to develop a method suitable to integrate an "interactive"

[37] Glaeser et al. (2000) double the amount sent instead of tripling it as in the classic trust game, include a promise condition and remove subject-to-subject anonymity (Glaeser et al. 2000, 821).

[38] In the envelop drop experiment subjects can place a value on an envelop that is addressed to themselves and subsequently dropped by the experimenter. In the present study subjects had to evaluate different conditions (e.g. different places where the envelop could be dropped) and an average was taken. The higher the amount a subject places the higher the level of trust.

[39] That includes the most-people question as well as questions concerning expected fairness (*Do you think most people would try to take advantage of you if they got the chance, or would they try to be fair?*) and helpfulness (*Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?*) (Glaeser et al. 2000, 825).

experiment. Fehr et al. (2003) use decisions in an investment game to measure behavioral trust and different survey questions to measure self-reported trust.[40] Consequently, the authors can identify which survey questions correlate well with behaviorally exhibited trust in the experiment. However and in contrast to Glaeser et al. (2000), their sample is far more interesting as it comprises groups that are normally not present in standard laboratory experiments.

An interesting novelty is the study by Burns, Mearns and McGeorge (2006) that investigates the safety culture at a UK gas plant. Arguing that self-report measures may be biased by respondents' motivations of self-presentation the authors try to measure trust implicitly. Implicit measures were originally developed to measure prejudices (e.g. Fazio and Olson 2003). In the study participants are shown different categories of people on a screen (e.g. the word "Workmates"). These terms may or may not trigger an automatic attitude. Subsequently, participants are shown a trust-related or distrust-related target word (e.g. "Caring") and have to press a key labeled "trust" or "distrust" as quickly as possible. The idea is that the presence of an automatic attitude will impact the latency time of participants' answers. In other words, if a participant has an automatic attitude towards a certain trustee category that mirrors trust (or distrust respectively), the participant will be quicker to push the respective button labeled with trust (or distrust).

Although this is an interesting approach, more studies are needed to assess its validity. Burns, Mearns and McGeorge (2006, 1149-1148) mention various potential problems. Importantly, automatic attitudes should only matter when the motivation or opportunity to deliberate are low. Presumably, individuals do have time for deliberation in most real-life situations where trust is required. Moreover, it is unclear to what extent the basic motivation behind this measurement approach – self-presentation bias – matters as strongly for self-reported trust as it does for prejudices.

In 2009 Ermisch et al. (see also Ermisch and Gambetta 2006) publish a convincing critique of the classical version of the trust game suggested by Berg, Dickhaut and McCabe (1995). Among other aspects, they point out that the game does not properly reflect trust situations in real-life. Despite the attempt to isolate trust as an explanation, the

[40] 1. *Do you think that most people try to take advantage of you if they got a chance or would they try to be fair?*; 2. *Would you say that most of the time people try be helpful or that they are mostly just looking out for themselves?*; 3. a) *In general, one can trust people* b) *In these days you can't rely on anybody else* c) *When dealing with strangers it is better to be careful before you trust them*; 4. *In the following you are asked to which persons, groups and institutions you have more or less trust*; 5. *Have you ever spontaneously benefited from a person you did not know before?*; 6. *How often does it happen* a) *that you lend personal possessions to your friends (CDs, books your car, bicycle etc.)?* b) *that you lend money to your friends?* c) *that you leave your door unlocked?* (Fehr et al. 2003, 10-11).

observed behavior in the classical trust game may be due to different motivations such as gift-giving. Moreover, the game in its classical version does not allow for including factors that may matter strongly in real-life such as the possibility of sanctions (Ermisch and Gambetta 2006, 12-13).[41] Ermisch and Gambetta (2006, 11) conclude that "to call the standard form of TGE a trust game is a misnomer". Accordingly, they proceed with a game with modified rules that reflects their criticism and they integrate their experiment into a survey similar to the study by Fehr et al. (2003).

Among researchers relying on self-report measures the topic of measurement equivalence has become a major concern in recent years. More and more scholars wonder whether the standard survey questions measure the same across individuals. Due to their popularity, the most-people question and other questions measuring generalized trust are scrutinized very closely. In his influential book Uslaner (2002, 73) analyzes *think-aloud* responses to the most-people question and concluded that the "question on trust brings up general evaluations of society". Uslaner compares the most-people question to two other trust questions: "*Would you say that most of the time people try to be helpful, or that they are just looking out for themselves?*" and "*Do you think most people would try to take advantage of you if they got the chance or would they try to be fair?*" and argues that the most-people question fares best (see also Uslaner 2002, 18-19, Footnote 7).[42] In 2012 Uslaner reasserts his optimism regarding the dichotomous version of the most-people question. Sturgis and Smith (2010) investigate to what extent differential interpretation of the most-people question, and a second question measuring trust in people in the local area, may affect responses. They conclude that differences in the interpretation of the trustee categories B – specifically *most people* and *people in your local area* – may lead to a bias in responses.[43] Other scholars rely on a different methodological approach: Instead of probing questions, they use structural equation models to assess measurement equivalence of latent trust constructs (Davidov et al. 2014; Freitag and Bauer 2013; Reeskens and Hooghe 2008; van der Veld and Saris 2011). So far, these analyses show that equivalence of self-report measures of generalized trust can not be taken for granted across countries (Reeskens and Hooghe 2008). Recent research investigates the same issue for self-report measures of political trust (e.g. Poznyak et al. 2013; Schaap and Scheepers 2014). The issue of measurement equivalence concerns various

[41] Different studies try to test factors such as a truster's or a third party's control or sanctioning ability with modified lab games. See for instance, Buskens, Raub and van der Veer (2010) and van Miltenburg, Buskens and Raub (2012).

[42] The think-aloud experiment is included in the American National Election Pilot Study 2000.

[43] Delhey, Newton and Welzel (2011) make an attempt at solving the problem of this interpretative radius and investigate to what extent the generalized trust question correlates with other, more specific trust questions across countries.

trust self-report measures as well as other survey questions and merits more attention in future research (e.g. Bauer et al. 2014).
In sum, various self-report and behavioral measures have been introduced during the last decades. As far as self-reports are concerned, researchers today primarily use modified versions of questions that were introduced in the 1940s and 50s for social trust and in the 1960s for political trust. The most widely used question to measure generalized trust, is a modified version of the most-people question presumably introduced in 1942. Regarding lab game experiments, researchers started out with the prisoner's dilemma (see Deutsch 1960) and now mainly rely on the classic trust game (Berg, Dickhaut and McCabe 1995). Despite the various developments and innovations in both research traditions, empirical research is largely based on a few measurement instruments, the validity of which is increasingly scrutinized. For this reason, measurement is likely to become one of the main frontiers in future trust research.

## 1.4 Trust subconcepts in this dissertation and the relevant debates

In the two previous sections I discussed trust both from a conceptual and a measurement perspective. Below, I outline which trust subconcepts are investigated in the following chapters and summarize the debates to which the three chapters contribute.
All three chapters investigate trust as an expectation and rely on classical self-report measures of trust. Whereas the first two studies investigate *social trust*, the third study investigates *political trust*. The concept of *generalized trust* is investigated in both Chapter 2 (Freitag and Bauer 2013) and Chapter 3 (Bauer 2014*b*). In Chapter 2 (Freitag and Bauer 2013) we differentiate *generalized trust* from *particularized trust* and *identity-based trust* both theoretically and empirically. Each subconcept is measured with two trust questions. *Generalized trust* is measured with the two strongly correlated items, the most-people question ($B$ = *most people*) and a question that refers to $B$ = *persons one meets for the first time*.[44] Chapter 3 (Bauer 2014*b*) solely investigates the concept of *generalized trust* relying on the most-people question. Finally, Chapter 4 (Bauer and Fatke 2014) is concerned with *political trust* as measured with an indicator querying trust in $B$ = *cantonal authorities*. All three chapters rely on self-report measures of trust that are currently widely used and accepted within the research community. The conception of the overarching trust concept proposed in Section 1.2 further suggests to specify an

[44] Identity-based trust is measured with two indicators querying trust in $B$ = *persons of another religion* and $B$ = *persons of another nationality*. Particularized trust is measured with two indicators querying trust in $B$ = *friends* and $B$ = *trust in neighbors*.

expected behavior X and defines trust as a subjective probability. Current self-report measures do not reflect these subtleties. Hence, the specification of both X and the use of probability answer scales are areas in which future measurement of trust could become more refined as I will argue in the conclusion.

Essentially, there are *three related important debates* to which the following chapters contribute. *A first debate* discusses problems with current self-report measures. As suggested in Section 1.3 scholars recently started to question whether the standard trust questions really measure the same across individuals across countries and languages, i.e. whether trust questions might suffer from measurement inequivalence/interpersonal incomparability (van der Veld and Saris 2011; Sturgis and Smith 2010; Delhey, Newton and Welzel 2011). Chapter 1 (Freitag and Bauer 2013) engages in this debate. Using data from Switzerland we investigate whether different trust questions measure the same latent trust constructs across individuals belonging to three different cultural-linguistic regions. The fundamental idea is that concepts such as generalized trust represent latent constructs that can be measured with observed indicators. If one can show that the observed indicators relate to the latent constructs in the same way across groups one can assume that one measures the same construct across these groups.

The *second debate* concerns the so-named forms or dimensions of trust. As outlined in Section 1.3, scholars originally developed measurement instruments that comprised several questions tapping trust in different trustee categories (e.g. Rosenberg 1956; Rotter 1967). More recently, scholars started investigating whether trust is a one-dimensional construct, i.e. whether an individual's trust judgment differs for categories of trustees such as strangers, neighbors, family members and friends or not. In the latter case the trustee category B would not matter for the trust judgment, i.e. a respondent would report the same level of trust regardless of who is the target of the trust judgment. Although it seems common sense that respondents differentiate between different trustees, evidence on this question is mixed and it is unclear how fine-grained this differentiation is (e.g. Omodei and McLennan 2000; Whiteley 2000). Using confirmatory factor analysis we investigate in Chapter 2 (Freitag and Bauer 2013) whether individuals really do make a difference between different trustee categories and to what extent these judgments can be summarized into higher-order latent trust constructs.

The *third debate* is concerned with causes of differences in trust across humans. This debate is linked to the above-mentioned debate on the dimensions of trust. Since trust levels of single respondents vary across different trustee categories, it is likely that the respective trust judgments have different foundations. In Section 1.2.1 I suggested to use the letter C as a placeholder for the lines of thought on which trusting expectations

might be based. Throughout his influential book "*The Moral Foundations of Trust*" Uslaner (2002) argues that generalized trust as measured with the most-people question is based on optimism which is essentially a function of early life parental socialization. Some years later Uslaner (2008*b*, 291) explicitly argues that generalized trust "is not experience-based trust". The concept of experience is somewhat misused here since it should also encompass early life experiences. In essence, Uslaner (2002) argues then that early-life experiences matter for generalized trust, whereas later-life experiences do not. Again evidence on this front is mixed. In Chapter 3 (Bauer 2014*b*) I focus on later-life experiences, more precisely victimization experiences and investigate their causal relationship with generalized trust.

As argued in the introduction institutions matter for both trust relationships between individuals as well as between citizens and political authorities. Research on political trust has seen an ongoing debate on its potential causes (e.g. Mishler and Rose 2001). In Chapter 4 (Bauer and Fatke 2014) we investigate the relationship between direct democracy and trust in cantonal political authorities. Direct democratic institutions allow citizens to participate and to intervene in the political process. They represent a sanctioning instrument of the principal, the people, that hangs over the agent, the political authorities, like the metaphorical "Sword of Damocles". Consequently, we hypothesize that direct democratic institutions, i.e. living in a context in which these institutions are strong may raise trust in political authorities because political decisions are closer to the median voter.

To sum up, the following chapters contribute to three important debates within trust research, which concern the measurement and the causes of trust. They should be regarded as small steps in the field of trust research that push the boundary of knowledge a little bit further. At the same time they open multiple avenues for further research. In that sense, the conclusions of the single chapters point to possible directions into which future research might develop. These are summarized in the overall conclusion in Chapter 5.

# 2 Testing for measurement equivalence in surveys: Dimensions of social trust across cultural contexts*


## Abstract

Our study evaluates the dimensionality and equivalence of social trust across cultural contexts by using new data from Switzerland and the World Values Survey 2005-2008. While some scholars assert that trust should be regarded as a coherent concept and forms a single scale, others claim that trust is better conceived of as a multi-dimensional concept. In contrast to the conventional dichotomy of the forms of social trust, we identify three distinct forms of trust, namely particularized, generalized, and identity-based trust. Moreover, we dispute the view that respondents understand the wording of survey questions regarding social trust differently between different cultural contexts, which would imply that comparative research on trust is a pointless endeavor. Applying multiple-group confirmatory factor analysis to the various constructs of social trust, we conclude that one may study relationships between the three forms of trust and other theoretical constructs as well as compare latent means across cultural contexts. Our analyses therefore provide an optimistic outlook for future comparative analyses that investigate forms of social trust across cultural contexts.



* This chapter is identical to a manuscript, co-authored with Markus Freitag and published in Public Opinion Quarterly (Freitag and Bauer 2013). First and foremost, my gratitude goes to my co-author Markus Freitag. I'd also like to thank the editors of the POQ Special Issue on Measurement, four anonymous reviewers, Georg Datler, Richard Traunmüller and various others for their helpful comments.

## 2.1 Social trust: Dimensions and measurement equivalence of a popular concept

Trust has moved from being a bit player to center stage in contemporary social science (Almond and Verba 1963; Delhey, Newton and Welzel 2011; Freitag and Traunmüller 2009; Gambetta 1988; Herreros 2004; Kramer 1999; Sztompka 1999; Stolle 2002; Uslaner 2002). Despite this growing popularity, efforts to increase conceptual clarity have not kept pace. Against this backdrop, the aim of the present study is to address ongoing controversies concerning the dimensions and the measurement of social trust by evaluating the dimensionality and measurement equivalence of social trust across cultural contexts. Based on theoretical insights and new data covering a wide range of different trust items from Switzerland, we identify three distinct forms of trust, namely particularized, generalized, and identity-based trust. Moreover, we dispute the view that respondents understand the wording of survey questions regarding social trust differently in diverse cultural contexts. Applying multiple-group confirmatory factor analysis (MGCFA) to the various constructs of social trust, we conclude that one may study relationships between the three forms of trust and other theoretical constructs as well as compare latent means across different cultural contexts.[1] We restrict our analyses mainly to the case of Switzerland. Despite their shared national context, the three main Swiss language regions (German, French, and Italian) are well-known for their striking cultural differences (Linder 1994; Steiner 2001)). The vast literature on social trust encompasses numerous conceptual variations. In general, social trust can be described as an expectation that people will behave with good will, that they intend to honor their commitments, and that they will avoid harming others (Glanville and Paxton 2007, 231, Barber 1983, Yamagishi and Yamagishi 1994).[2]

Fundamentally, a social trust attitude that is not related to any specific situation may be expressed as A trusts B. B, the target of trust, may be replaced by individuals or groups of individuals belonging to the universe of "everyone else" (Offe 1999, 44). Consequently, the question arises whether this trusting attitude is a coherent syndrome or whether

[1] Testing cross-cultural equivalence of latent constructs can be implemented by various techniques; however, previous research has demonstrated that the MGCFA approach is best suited for testing measurement equivalence across groups and is therefore superior to other techniques (Reeskens and Hooghe 2008).

[2] Scholars agree that it is necessary to differentiate between political and social trust. Political trust refers to trust in political institutions (e.g. parliament, government, etc.); social trust is an attitude that people have toward each other (Newton 2001; Newton and Zmerli 2011; Zmerli, Newton and Montero 2007). This article is concerned exclusively with social trust and we use 'trust' throughout to refer to 'social trust'.

there are different forms of social trust depending on its target. Whereas in the former case individuals are expected to display the same level of trust regardless of the target of trust, in the latter case, however, they are thought to display different levels of trust toward different targets.

Accordingly, a first idea holds that trust is a one-dimensional coherent phenomenon (Omodei and McLennan 2000; Whiteley 2000). On the basis of principal component analyses, Whiteley (2000, 450), for example, argues that across a large number of societies, trust in both people we know and in people we do not know build a single factor. In his analyses, trust in the "family", in the "fellow national citizens", and in "people in general" are all elements of a single concept.

In general, however, trust research works with a multi-dimensional conception of social trust. Here, the literature primarily identifies two distinct kinds of trust, namely particularized trust and generalized trust (see Freitag and Traunmüller 2009; Oskarsson, Svensson and Öberg 2009; Newton and Zmerli 2011; Stolle 2002; Uslaner 2002; Yamagishi and Yamagishi 1994). Particularized trust is trust at close social range and is exhibited toward people the individual personally knows from everyday interactions (e.g. friends, neighbors, and co-workers). On the contrary, generalized trust is a rather abstract attitude toward people in general, encompassing people beyond one's immediate familiarity, including strangers (e.g. random people one meets on the street, etc.). Generalized trust differs from particularized trust in that it deals with unknown groups and/or strangers and does not predominantly depend upon specific situations (Stolle 2002).

Apart from these two extreme forms of social trust one could think of trusting a person with whom one does not have a personal relationship but with whom one shares a common identity. This kind of trust is called identity, group, or category-based trust (see also Kramer 1999; Stolle 2002). Drawing on the social identity theory developed by Tajfel (1974) and Tajfel and Turner (1979), this conception of trust is based mainly on identification and categorization. Shared identity could include behavioral similarities, geographical proximities, common fate, mores, ethnicity, or traditions (Stolle 2002, 401). Social categorization is assumed to amplify the perceived similarity among individuals who share membership in a social category, which in turn increases the perception that others identify the situation in a similar manner (Stolle 2002, 402). In general, it is assumed that people tend to trust those with whom they share a group identity or a membership in a given category more than people with whom they do not (Brewer 1981; Kramer 1999).

Identity-based trust differs from particularized trust and generalized trust: Identity-based trust is not particularized because the truster may confer this sort of trust on another

person without knowing him or her personally. In the case of identity-based trust, personal experience with the target of trust is therefore not a prerequisite to having a high or low level of this type of social trust. People may judge others to be trustworthy because their membership in a given category bypasses the need for personal knowledge. For instance, individual A might judge someone belonging to the same religious denomination or nationality as trustworthy, simply because he or she also belongs to this category (Yuki et al. 2005). Identity-based trust may however be cognitively-based on personal experience: Individuals may collect personal experience with people belonging to a certain category and subsequently project their positive experience on others belonging to this category. Moreover, identity-based trust differs from generalized trust because in contrast to targets in the generalized trust view, individuals have at least some information about the category of the target, and, as a consequence, experience should play a far greater role than disposition.

In addition to the discussion of forms of social trust, we have observed a remarkable unease among scholars regarding the cross-cultural measurement of social trust constructs. An increasing number of studies have used survey data to compare the climate of social trust that exists in specific societies using various data sources (Adam 2008; Delhey, Newton and Welzel 2011; Inglehart 2000; Pichler and Wallace 2007). At the same time, however, critics argue that serious limitations exist-either in the form of a situational or a semantic and culturally conditioned understanding of the wording of the question or statement. Respondents potentially understand and interpret the meaning of a given survey question differently in different cultural contexts, which would therefore render comparative research on trust a futile undertaking (Adam 2008, 164, 177, Reeskens and Hooghe 2008; Miller and Mitamura 2003; Torpe and Lolle 2011; Sturgis and Smith 2010; van der Veld and Saris 2011). Measurement equivalence of social trust constructs therefore cannot be considered as a given fact. Meaningful and interpretable comparisons of trust constructs and their relations to other variables across contexts are however only possible when equivalence is guaranteed (Deth 2009). We thus need to determine that the measurement characteristics of the relevant constructs are in fact invariant across these entities (Davidov 2009, 65). A growing awareness of this issue has been documented in recent studies with regard to the concept of generalized trust (Delhey, Newton and Welzel 2011; Torpe and Lolle 2011; Reeskens and Hooghe 2008; van der Veld and Saris 2011); however, to this date, and the best of our knowledge, no single study exists that scrutinizes measurement equivalence of particularized, generalized, and identity-based social trust.

In sum, the above discussion of different forms of trust leads us to the following hypoth-

esis: Individuals are likely to differentiate between three different forms of social trust, namely particularized trust, generalized trust, and identity-based trust. Moreover, we believe that the differentiation between three different forms of trust is valid across cultural contexts. Therefore, we hypothesize that despite the apparent cultural differences among the linguistic regions in Switzerland, our measurement model is equivalent across the German, French, and Italian-speaking regions.

## 2.2 Data, operationalization, and methodology

Table 2.1: Items measuring trust in "Volunteering in Swiss Municipalities 2010"

| **Item** | **Question wording** |
|---|---|
| Most people | Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? Using a scale on which 0 means that you can't be too careful in dealing with people and 10 means that most people can be trusted, where would you locate yourself on this scale? |
| Friends | And how does it look like for certain groups of persons. If you take again the scale from 0 to 10, on which 0 means "no trust at all" and 10 "a lot of trust", how great is your trust in your friends? |
| Neighbors | ..in your neighbors? |
| Meet first time | ..in persons that you meet for the first time? |
| Other religion | ..in persons of another religion? |
| Other nationality | ..in persons of another nationality? |

Data were collected as part of the survey "Volunteering in Swiss Municipalities 2010" that provides us with an opportunity to inspect the measurement characteristics of the distinct dimensions of social trust as outlined above. The survey collected data for 4955 individuals located in 60 different communes in Switzerland.[3] The overall response rate was 30 percent (RR1, AAPOR 2011). The response rates cluster around 30% across the 60 communes or the three language regions (see online appendix A).

Like the World Values Survey 2005-2008, the Swiss survey contains questions referring to trust in most people, in persons one meets for the first time, in friends, in neighbors, in people of another religion, and in people of another nationality. Each of these items consists of 11-point answering scales ranging from "0" (do not trust at all) to "10" (trust

[3] The individuals in these communes were randomly chosen and questioned by means of CATI. The communes have been chosen according to certain criteria (size, cultural-linguistic region, rurality) in order to represent the variety among Swiss communes. The data can be downloaded at www2.unil.ch/fors/?lang=de.

a lot) (see Table 2.1).[4] Additional analyses were conducted using data from the international World Values Survey 2005-2008 (see the online appendix B for more information on the survey and questions used in this analysis).[5]

To test the above-assumed relations, we conduct a two-step procedure. First, to evaluate the dimensionality of social trust, we conduct several confirmatory factor analyses (Figure 2.1; Model A, B and C). Here, the indicators are regarded as manifest symptoms that are influenced (caused) by one or more latent constructs (Brown 2006, 105). Against the backdrop of our theoretical considerations, we test whether trust forms a single factor (Model A) or if it is rather a multi-dimensional concept (Model B and C). Regarding trust as a two-dimensional concept, conventional wisdom refers to the latent constructs of particularized and generalized trust (Torpe and Lolle 2011). Most scholars suggest that trust in people of other religions and ethnicities should be related to the form of generalized trust (Delhey, Newton and Welzel 2011; Badescu 2003). According to this account, "trust in people of a different religion or nationality," "trust in people you meet for the first time," and "trust in most people" should belong to generalized trust, whereas particularized trust should be measured with the items "trust in neighbors," and "trust in her/his friends" (Model B).[6] In terms of trust as a three-dimensional concept, "trust in neighbors" and "trust in her/his friends" refer to the realm of particularized trust and "trust in people of a different religion or nationality" belongs to the distinct dimension of identity-based trust. To measure generalized trust we rely on the items "trust in people you meet for the first time" and "trust in most people" (Model C). Strictly speaking, theoretical explanations concerning identity-based trust would require numerous questions querying trust in a wide variety of shared identities. Our data however precludes

[4] The trust questions were located in a battery whereby the question order in this battery was changed at random. The presence of 11 categories does not guarantee that respondents are distributed across all possible answer categories. Additional analyses (not documented here) reveal that all measurements except for the indicator "trust in friends" are quite dispersed. Some might argue that unweighted least squares parameter estimations (ULS) should be used. Corresponding empirical analyses do not change the reported empirical results (not documented here). Moreover, one could argue that survey participation is related to levels of trust. In our case both respondents with high as well as very low levels of social trust participated in the survey, e.g. the answers are quite dispersed across our trust-scales.

[5] See the World Values Survey website (http://www.wvsevsdb.com/) for general information about this survey.

[6] It is often argued that the trust question referring to "most people" is critically underspecified, leading respondents to fill in their own specifications (Nannestad 2008, 417). Consequently, responses to the generalized trust question may be partially or totally incomparable across individuals, groups, or countries. Moreover, they may not be expressions of generalized trust at all, and instead focus on people personally known or may simply evaluate the quality of political institutions (Beugelsdijk 2006; Delhey and Newton 2005; Torpe and Lolle 2011; Sturgis and Smith 2010). According to many scholars, however, trusting "most people" means simply that we trust strangers (Uslaner 2002, 52).

this possibility. We refer to categories/identities such as nationality or religion that separate individuals belonging to these categories from the respondent. In other words, the trust we have in a certain group that shares our identity is defined by the boundaries that separate our group from other categories and groups (for this line of argumentation see also Offe 1999, 63-65.[7] According to Meuleman and Billiet (2006), a factor analytic measurement model can be represented as follows:

$$x_j^g = \tau_j^g + \lambda_j^g \xi^g + \delta_j^g \text{ (Equation 1)}$$

In this equation, each indicator $x_j^g$ is modeled as a regression function of latent factor $\xi^g$, with intercept $\tau_j^g$, regression slope or factor loading $\lambda_j^g$, and stochastic error term $\delta_j^g$. The subscript j represents the different items. The superscript g indicates a possible group membership, which is of importance when investigating measurement equivalence later on (Steenkamp and Baumgartner 1998, 79; Meuleman and Billiet 2006). Since our data do not display multivariate normality, we use maximum likelihood parameter estimates with standard errors and a mean-adjusted chi-square test statistic that are robust to non-normality to estimate the parameters in our models (MLM). Listwise deletion was used for missing values since MLM necessitates complete data.[8]

Second, we scrutinize the cross-cultural measurement invariance regarding the superior conception of social trust using multiple-group confirmatory factor analysis (MGCFA). Measurement invariance (or equivalence) is defined as "whether or not, under different conditions observing and studying phenomena, measurement observations yield measures of the same attribute" (Davidov 2009, 68). Following the literature on this topic, we can distinguish three different levels of measurement invariance (see also Meredith 1993).

The basic level of measurement equivalence or measurement invariance is configural invariance. The presence of configural invariance implies that our latent constructs can be measured by the same items across the investigated groups in a cross-cultural study. Configural invariance is supported if (a) a single model specifying the items that measure each construct fits the data well, (b) all item loadings are substantial and significant, and (c) the correlations between the factors are less than one (Steenkamp and Baumgartner 1998, 80).

[7] This line of argumentation also reflects seminal findings of the socio-psychological literature beginning with Sumner (1906) that indicate that positive sentiments toward the in-group were correlated with hostility toward out-groups and vice versa. Moreover, according to Brewer (1981) and Stolle (2002), within these in-groups of shared identities the probability of reciprocity and trust is assumed to be high.

[8] In addition, MLM estimation corrects the chi-squared as well as the standard errors of the parameter estimates for non-normality in large samples (Satorra and Bentler 2001; Brown 2006, 76).

Configural invariance does not however ensure that people belonging to different cultural contexts understand the items in the same way. The factor loadings may continue to be different across contexts; therefore, the test of the second level of measurement invariance, metric invariance, requires that the factor loadings between the observed items and the latent construct are invariant across these contexts. This is tested by constraining the factor loadings of each item on its corresponding construct to be the same across groups (cf. equation 1: factor loadings $\lambda$ of the respective items $_j$ are held constant across the groups $^g$).[9] Only if metric invariance is assured, can scores on the item and on the scale be compared cross-culturally. In other words, an increase of one unit in the latent variable would have the same meaning for all groups being compared (Meuleman and Billiet 2006, 4).

Configural and metric invariance are not sufficient to ensure a valid comparison of means of both the observed and latent variables across cultural contexts. Here, a third level of invariance, the so-called scalar invariance is necessary. Scalar invariance guarantees that cross-context differences in the means of the observed items are a result of differences in the means of their corresponding constructs. While factor loadings are kept constant across groups to establish metric invariance, the scalar invariance test is even stricter, as intercepts are also constrained across groups (cf. equation 1: loadings $\lambda$ as well as intercepts $\tau$ of the respective items $_j$ are held constant across groups $_g$) (Steenkamp and Baumgartner 1998, 80).

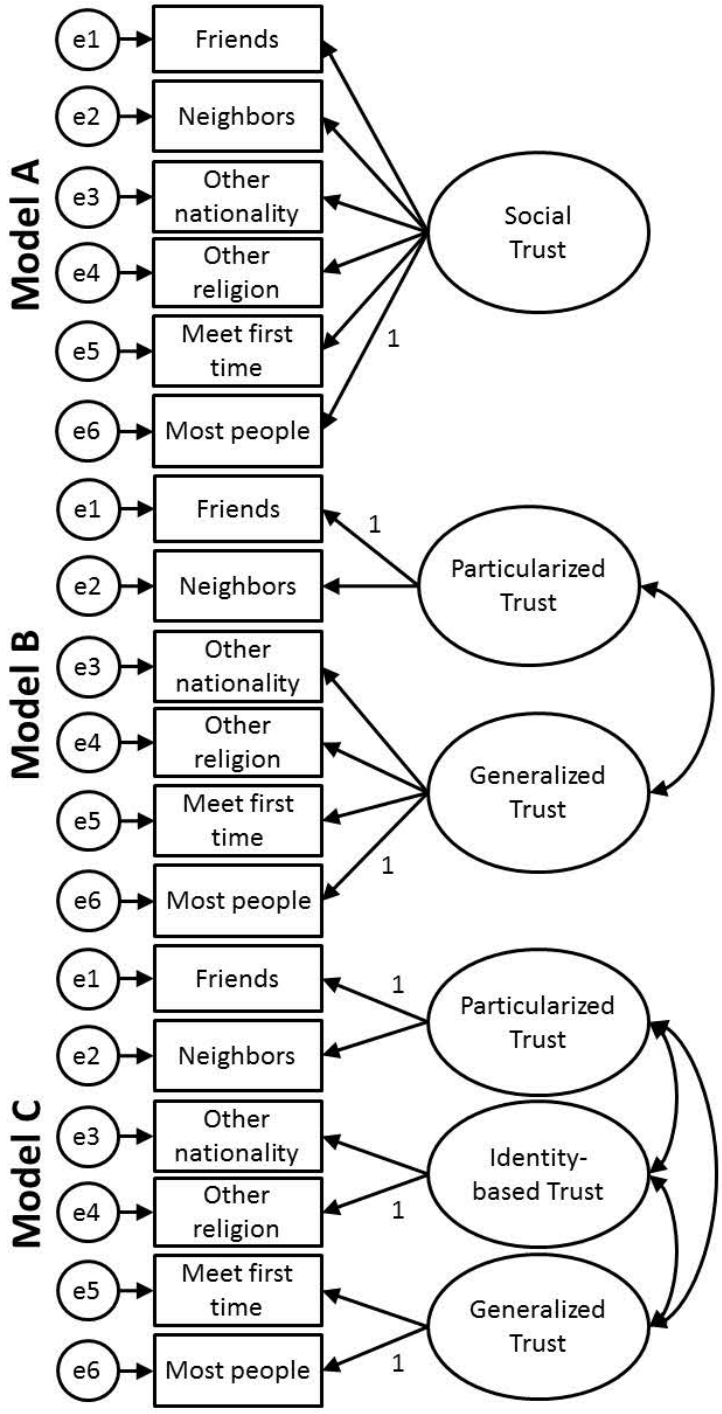
Altogether, meaningful comparisons of construct means across groups require three levels of invariance: configural, metric, and scalar. Only if all three types of invariance are met can we assume that scores are not biased. In other words, if we can demonstrate the three levels of invariance for our appropriate conception of social trust across the cultural contexts, it becomes clear that our preferred conception of trust can be reliably used in cross-cultural research on the contexts under investigation.

To test the adequacy of our measurement models we rely on different fit indices, namely the RMSEA (root mean square error of approximation), the SRMR (standardized root mean square residual), the CFI (comparative fit index), and the TLI (Tucker-Lewis index).[10] When the RMSEA is smaller than 0.06 (0.08), one can assume the model has

[9] Various scholars argue that partial invariance may be sufficient to allow cross-cultural comparison (Steenkamp and Baumgartner 1998). In this regard, only two equal factor loadings per construct across countries are necessary. To resort to partial invariance, however, one needs at least three indicators per construct (Brown 2006; Byrne, Shavelson and Muthén 1989; Byrne 2010).

[10] For the sake of convenience, we also report chi-square scores. One must however keep in mind that the chi-square test statistic is very sensitive to sample size. Since the sample sizes in this analysis are very large, the chi-square test statistic is a rather inaccurate indicator of model fit (Davidov 2009; Reeskens and Hooghe 2008; Brown 2006; Byrne 2010).

Figure 2.1: Model A, B and C




*Note:* In the empirical analysis factor loadings indexed by 1 in the figure were set to 1 for identification purposes.

a good (acceptable) fit to the data. SRMR (value smaller than 0.08) and both the TLI and CFI (values larger than 0.95) provide further indications of a good model fit (Hu and Bentler 1999; Marsh, Hau and Wen 2004).[11] In addition, to evaluate which of our three trust models (see Figure 2.1) comparatively provides the best fit, we rely on the Akaike Information Criterion (AIC). Comparably lower values indicate better model fit (Brown 2006, 175 f.). Finally, differences between fit measures (CFI and RMSEA) of the multi-group-models - representing configural, metric, and scalar variance - are used to evaluate measurement invariance. "[F]or testing loading invariance, a change of ≤ -.005 in CFI, supplemented by a change of ≥ .010 in RMSEA [...] would indicate non-invariance" and a "change of ≥ -.005 in CFI, supplemented by a change of ≥ .010 in RMSEA [...] would indicate non-invariance when testing intercept [...] invariance" (Chen 2007, 501).[12] Moreover, Saris, Satorra and van der Veld (2009) strongly argue that one should further evaluate (local) model fit taking the expected parameter change in combination with the modification index (MI) and the power of the MI test into account. Following their recommendations we use the free software "JRule for Mplus" that automates this procedure (Oberski 2009).

## 2.3 Empirical results

In the following we first present our empirical results regarding the different models of social trust, i.e. one-dimensional, two-dimensional, and three-dimensional conceptions. As one can see in Table 2.2 the three models differ strikingly with regard to model fit. To begin with, the one-dimensional trust-model, with the exception of the SRMR ($0.041 \leq 0.08$), shows only poor fit measures. Similarly, Model B where our manifest variables are explained by two latent factors displays only acceptable values for the SRMR ($0.033 \leq 0.08$) and the CFI ($0.953 \geq 0.95$). In contrast, the three-dimensional trust-model (Model C) exhibits by far the best fit compared to the models that posit alternative structures: All fit measures pass the thresholds recommended by Hu and Bentler (1999). Additionally, the values for the AIC are smallest for Model C, corroborating the fact that it fits the data better compared to the other two models.[13] In other words, the analyses seem to support the perspective that individuals differentiate between the three dimensions of

[11] We conducted our analyses in R. R-version 2.12.1 relying on the R-package "lavaan". Additionally, the results were replicated with MPLUS 6.1.

[12] Chen (2007, 501) suggests to use these more stringent cut-off values when the sample size is small (total N ≤ 300), sample sizes are unequal, and the pattern of non-invariance is uniform.

[13] The classical chi-square difference test (not reported here) also shows that the 3-factor model fits the observed data significantly better than the other two models. Moreover, taking sample sizes into consideration, the modification indices for Model C are acceptable (see online appendix C)

social trust represented by the three latent factors in our models.[14]

Table 2.2: Dimensionality of social trust - model fit

| Model | Chi-Squared | Df | SRMR | RMSEA | TLI | CFI | AIC |
|---|---|---|---|---|---|---|---|
| 1: One dimension | 271.46 | 9 | 0.041 | 0.082 | 0.884 | 0.93 | 99542 |
| 2: Two dimensions | 185.58 | 8 | 0.033 | 0.072 | 0.911 | 0.953 | 99381 |
| 3: Three dimensions | 24.71 | 6 | 0.012 | 0.027 | 0.988 | 0.995 | 99096 |

*Note:* N = 4289; Missing values were treated with listwise deletion; MLM-estimator with robust standard errors and Satorra-Bentler scaled test statistic; RMSEA = Root mean square error of approximation; CFI = Comparative fit index; TLI = Tucker-Lewis Index; SRMR = Standardized root mean square residual; AIC = Akaike Information Criterion;

Table 2.3: Loadings of the three-dimensional trust model

| | Estimate | Std. err | P(>\|z\|) | Loadings |
|---|---|---|---|---|
| Particularized trust -> Friends | 1 | | | 0.58 |
| Particularized trust -> Neighbors | 1.637*** | 0.086 | 0 | 0.685 |
| Generalized trust -> Most people | 1 | | | 0.654 |
| Generalized trust -> Meet first time | 1.057*** | 0.037 | 0 | 0.716 |
| Identity-based trust -> Other religion | 1 | | | 0.754 |
| Identity-based trust -> Other nationality | 0.997*** | 0.034 | 0 | 0.778 |

*Note:* N= 4289; Missing values were treated with listwise deletion; MLM-estimator with robust standard errors and Satorra-Bentler scaled test statistic; *** = p<.01; Loadings display standardized values;

In addition, if we define a standardized factor loading of 0.30 or above as a "salient" loading (Brown 2006, 130), the loadings of the three-dimensional trust-model are satisfyingly high and all are significant (see Table 2.3). Moreover, it is apparent that in this sample the indicator "trust in most people" loads on the same factor as "trust in people you meet for the first time," indicating that both indicators measure the same latent factor that we termed generalized trust. Finally, the standardized co-variances between the three trust dimensions are relatively high and positive (particularized trust ↔ generalized trust = 0.795; particularized trust ↔ identity-based trust = 0.661; generalized trust ↔ identity-based trust = 0.788), but below a value of 0.85, which is often used as cutoff criterion

in contrast to the modification indices obtained in Model A and B that reach values of up to 178 (Model B) and 206 (Model A) (estimations are available upon request).

[14] Following Uslaner (2002, 28) "particularized trust uses group categories to classify people as members of in-groups or out-groups (do you belong, or don't you)." If we measure particularized trust with "trust in neighbors," "trust in her/his friends," and "trust in people of a different religion or nationality," whereas the items "trust in people you meet for the first time," and "trust in most people" reflect generalized trust, the model exhibits an even worse fit than our Model B.

since it indicates problematic discriminant validity (Brown 2006, 166).

All in all, we conclude that compared to the alternative conceptions of social trust as a single construct or two-dimensional formulation, our analyses support the three-dimensional trust-model. In other words, particularized, identity-based, and generalized trust emerge as three distinct constructs in our analysis. This holds also in separate analyses (not shown here) for the three language regions in Switzerland.[15]

In the next step we turn to the aspect of measurement equivalence of the outstanding three-dimensional trust-model. We first present three single-group CFAs for the three language regions of Switzerland (see Table 2.4). (Brown 2006, 269), for example, highlights the importance of conducting single-group analyses prior to multi-group comparison. As Table 2.4 shows, our measurement model provides a good fit for all of the cultural regions. To test for configural, metric, and scalar invariance of our three-factor solution of social trust, we further constructed one multiple-group measurement model. Following other studies we employ a "bottom-up" test strategy to analyze our data. We start with the weakest level of invariance (configural invariance) and then sequentially test metric and scalar invariance (Brown 2006, 269; Byrne 2010; Davidov 2009). This allows us to establish whether weak forms of invariance can be viewed as unproblematic, a logical first step given that we are confronted with a hitherto unexplored research area. With regard to the fit indices of the configural invariance model displayed in Table 2.4, we cannot reject this model. That is, we can consider the specification of the items that index particularized, identity-based, and generalized trust as invariant for three cultural regions of Switzerland. Moreover, as shown in Table 2.5 the respective model consists of the same substantial and significant item loadings, and correlations between the factors are less than one.

Based on the results of the metric invariance model, which constrains the factor loadings of the indicators of the three trust dimensions to be equal across the three regions, we also cannot reject the model. Finally, scalar invariance is necessary to compare the means of the trust constructs across the three cultures. Accordingly, in the third model the intercepts of indicators are set equal across the language regions in addition to the factor loadings between the indicators and the constructs. Again, the fit indices indicate that this more restrictive model is not rejected.

[15] We also estimated a second-order model. A single trust factor on the second level explains substantial parts of the variance in the three single trust constructs with standardized loadings of 0.97 (generalized trust), 0.82 (particularized trust) and 0.81 (identity-based trust). This could be due to a latent 'trustingness' structure (e.g. variance in all trust judgments can be explained by an individual's disposition to trust) or a battery effect. Future studies are needed to evaluate these two possibilities.

Moving from the configural to the model of metric equivalence decreases the RMSEA by 0.002 and does not change the CFI. Moving from metric to scalar equivalence model increases the RMSEA by 0.007 and decreases the CFI by 0.006 (see Table 2.4). These values are below the cut-off values for changes in fit measures proposed by (Chen 2007) and are indicative of measurement invariance across all three levels.[16]

In sum, configural, metric, and scalar invariance hold across the three cultural contexts in Switzerland. In other words, comparing the means of the latent constructs particularized, identity-based, and generalized trust between the three cultural regions is possible. The constructs of particularized, identity-based, and generalized trust can therefore be considered as cross-culturally valid concepts in three cultural regions in Switzerland. This result is encouraging as it indicates that despite the different cultural regions within Switzerland, this diversity does not constitute a hurdle for comparative analyses of constructs of social trust on the sub-national level.

These optimistic results notwithstanding, the general problem of how to approach the arguments presented in a cross-national perspective remains. Although our research design permits us to make cross-cultural comparisons, it should be noted that all of the comparisons took place within a single national context. To what extent, if any, does a shared national context undercut our ability to make inferences about equivalency across other cultural contexts? In theory, several scholars emphasized the diversity of the three Swiss regions. For instance, Stein Rokkan once called Switzerland a microcosm of Europe because of its cultural, linguistic, religious, and regional diversity (Linder 1994, xii). In addition, Switzerland has been described as composed of three groups that "stand with their backs to each other" (Steiner 2001, 145). Studies have also shown that the three Swiss cultural-linguistic regions have more in common with their neighboring countries than with each other regarding specific aspects of civil society and cultural life (Freitag and Stadelmann-Steffen 2008; Kriesi et al. 1996; Meier-Dallach 1991): "The French-Swiss stand facing towards France; the Italian-Swiss facing towards Italy; and the German-Swiss facing towards Germany, each focused on their own internal cultural life and the culture of the neighboring country whose language they share" (Kymlicka 2003, 155). Against this backdrop, we carried out additional analyses with data from the

[16] Additionally, local misspecification of the different MGCFA models was evaluated using "JRule for Mplus" fixing "high power ≥ 0.75" and a type I error rate of 0.05. No conclusive evidence of misspecification was found using the following delta values for unstandardized parameters: configural invariance model (0.3 for error covariances); metric invariance model (0.4 for loadings); scalar invariance model (0.4 for loadings, 0.4 for intercepts). Moreover, the fixed loadings (both for the metric and the scalar invariance model) were approximately equal to the freed loadings in the single group models without equivalence restrictions (estimations not shown here, but are available upon request).

Table 2.4: Measurement invariance of social trust constructs

| | $\chi^2$ | Df | P-value | RMSEA | ΔRMSEA | CFI | ΔCFI | TLI | SRMR |
|---|---|---|---|---|---|---|---|---|---|
| *Single Group Solutions* | | | | | | | | | |
| German-speaking Switzerland (n=3307) | 18.83 | 6 | 0.004 | 0.025 | | 0.995 | | 0.988 | 0.013 |
| French-speaking Switzerland (n=835) | 9.11 | 6 | 0.168 | 0.025 | | 0.997 | | 0.992 | 0.013 |
| Italian-speaking Switzerland (n=147) | 2.3 | 6 | 0.89 | 0 | | 1 | | 1.081 | 0.02 |
| *Measurement Invariance* | | | | | | | | | |
| Configural Invariance | 29.43 | 18 | 0.043 | 0.021 | | 0.997 | | 0.992 | 0.013 |
| Metric Invariance | 36.09 | 24 | 0.054 | 0.019 | -0.002 | 0.997 | 0 | 0.994 | 0.016 |
| Scalar Invariance | 62.72 | 30 | 0 | 0.028 | 0.007 | 0.991 | -0.006 | 0.987 | 0.02 |

*Note:* N= 4289; Missing values were treated with listwise deletion; MLM-estimator with robust standard errors and Satorra-Bentler scaled test statistic; RMSEA = Root mean square error of approximation; ΔRMSEA = Scaled difference in RMSEA; CFI = Comparative fit index; ΔCFI = Scaled difference in CFI; TLI = Tucker-Lewis Index; SRMR = Standardized root mean square residual.

Table 2.5: Measurement invariance of social trust: Parameter estimates for different contexts

| | **German-speaking Switzerland (n = 3307)** | | | | **Italian-speaking Switzerland (n = 147)** | | | | **French-speaking Switzerland (n = 835)** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Parameter** | **est** | **se** | **z** | **est.std.all** | **est** | **se** | **z** | **est.std.all** | **est** | **se** | **z** | **est.std.all** |
| pt = Friends | 1 | 0 | NA | 0.558 | 1 | 0 | NA | 0.478 | 1 | 0 | NA | 0.659 |
| pt = Neighbors | 1.697*** | 0.107 | 15.859 | 0.686 | 2.358*** | 0.75 | 3.145 | 0.801 | 1.437*** | 0.142 | 10.152 | 0.668 |
| gt = Most people | 1 | 0 | NA | 0.64 | 1 | 0 | NA | 0.817 | 1 | 0 | NA | 0.68 |
| gt = Meet first time | 1.059*** | 0.045 | 23.69 | 0.702 | 0.861*** | 0.142 | 6.044 | 0.7 | 1.082*** | 0.072 | 15.102 | 0.755 |
| it = Other religion | 1 | 0 | NA | 0.749 | 1 | 0 | NA | 0.589 | 1 | 0 | NA | 0.794 |
| it = Other nationality | 0.994*** | 0.038 | 26.252 | 0.771 | 1.261*** | 0.258 | 4.885 | 0.752 | 0.987*** | 0.069 | 14.306 | 0.821 |
| pt gt | 0.761 | 0.059 | 12.901 | 0.77 | 0.792 | 0.281 | 2.816 | 0.578 | 1.17 | 0.148 | 7.882 | 0.901 |
| pt it | 0.745 | 0.059 | 12.555 | 0.637 | 0.823 | 0.305 | 2.694 | 0.782 | 1.163 | 0.165 | 7.064 | 0.787 |
| gt it | 1.562 | 0.085 | 18.395 | 0.787 | 2.005 | 0.478 | 4.192 | 0.801 | 1.902 | 0.184 | 10.348 | 0.835 |

*Note:* N= 4289; Missing values were treated with listwise deletion; MLM-estimator with robust standard errors and Satorra-Bentler scaled test statistic; est = estimate; se = standard error; z = z-value; est.std.all = standardized estimate; ***p<.01;  = Covariances; =  = Loadings.

World Values Survey 2005-2008 for Switzerland and the neighboring countries (France, Germany, and Italy) plus the Anglo-American world (Great Britain, the United States and Canada) (see Table 2.6).

Table 2.6: Fit measures for three models for different countries

| **Country** | **Model A** | **Model B** | **Model C** |
|---|---|---|---|
| | Chi =271.29 | Chi =143.971 | Chi =11.772 |
| | CFI =0.978 | CFI =0.988 | CFI =1 |
| Great Britain (n=771) | TLI =0.963 | TLI =0.978 | TLI =0.999 |
| | RMSEA =0.194 | RMSEA =0.148 | RMSEA =0.035 |
| | WRMR =2.508 | WRMR =1.763 | WRMR =0.442 |
| | Chi =457.634 | Chi =334.21 | Chi =24.298 |
| | CFI =0.97 | CFI =0.978 | CFI =0.999 |
| Canada(n=1937) | TLI =0.949 | TLI =0.959 | TLI =0.997 |
| | RMSEA =0.16 | RMSEA =0.145 | RMSEA =0.04 |
| | WRMR =3.204 | WRMR =2.63 | WRMR =0.646 |
| | Chi =177.889 | Chi =143.843 | Chi =17.79 |
| | CFI =0.938 | CFI =0.95 | CFI =0.996 |
| France(n=935) | TLI =0.896 | TLI =0.906 | TLI =0.989 |
| | RMSEA =0.142 | RMSEA =0.135 | RMSEA =0.046 |
| | WRMR =1.94 | WRMR =1.731 | WRMR =0.554 |
| | Chi =451.857 | Chi =257.381 | Chi =13.241 |
| | CFI =0.979 | CFI =0.988 | CFI =1 |
| Germany (n=1593) | TLI =0.966 | TLI =0.978 | TLI =0.999 |
| | RMSEA =0.176 | RMSEA =0.14 | RMSEA =0.028 |
| | WRMR =2.998 | WRMR =2.153 | WRMR =0.437 |
| | Chi =387.272 | Chi =183.769 | Chi =8.363 |
| | CFI =0.95 | CFI =0.977 | CFI =1 |
| Italy (n=821) | TLI =0.917 | TLI =0.956 | TLI =0.999 |
| | RMSEA =0.226 | RMSEA =0.164 | RMSEA =0.022 |
| | WRMR =2.924 | WRMR =1.895 | WRMR =0.338 |
| | Chi =326.821 | Chi =254.884 | Chi =5.48 |
| | CFI =0.967 | CFI =0.975 | CFI =1 |
| Switzerland (n=1086) | TLI =0.946 | TLI =0.952 | TLI =1 |
| | RMSEA =0.18 | RMSEA =0.169 | RMSEA =0 |
| | WRMR =2.596 | WRMR =2.252 | WRMR =0.272 |
| | Chi =286.845 | Chi =217.729 | Chi =38.922 |
| | CFI =0.974 | CFI =0.981 | CFI =0.997 |
| USA (n=1189) | TLI =0.957 | TLI =0.964 | TLI =0.992 |
| | RMSEA =0.161 | RMSEA =0.148 | RMSEA =0.068 |
| | WRMR =2.462 | WRMR =2.128 | WRMR =0.759 |

*Note:* Data = WVS 2005; Following Yu (2002, 41, 162) we used the WRMR (Weighted Root Mean Square Residual) instead of the SRMR in combination with other standard fit measures to assess model fit. A WRMR value of $< 0.95$ indicates acceptable model fit. Estimator: Weighted least square parameter estimator using a diagonal weight matrix with robust standard errors and mean- and variance-adjusted $\chi^2$ test statistic (WLSMV in Mplus); See online appendix B for a more specific description of models estimated and the items/fit indices cutoff values used in the analysis.

The results obtained from these supplemental analyses seem to support our argument regarding the dimensionality of social trust. The considerable increase in different fit measures when comparing Models A and B to Model C indicates that social trust is three-dimensional rather than one- or two-dimensional for all seven countries under investigation. Again, all fit measures pass the thresholds recommended by Hu and Bentler (1999) and Yu (2002) with regard to categorical data. The findings therefore support the view that the configuration of our measurement model is equivalent across these countries. Hence, our analyses provide an optimistic outlook with regards to future comparative analyses that investigate forms of social trust across different national cultures. Moreover, as the majority of past research employs the conventional dichotomy of the forms of trust: particularized vs. generalized trust, our study suggests testing for the possibility of additional dimensions of trust. This could be particularly relevant when using data from the World Values Surveys.

## 2.4 Conclusion

Despite the growing awareness in the social science literature of the importance of social trust, little systematic research has explicitly addressed the question of which distinct forms of social trust can be identified, both theoretically as well as empirically, and if measurement of these forms of social trust is cross-culturally equivalent. If social trust is to be considered a major asset for a society, it becomes absolutely necessary to develop a valid measurement of this attitude. The aim of the present article was to provide a first step toward filling this gap as well as to spark a new debate. While most empirical analyses hitherto propose two dimensions of social trust (Delhey, Newton and Welzel 2011; Freitag and Traunmüller 2009; Glanville and Paxton 2007; Uslaner 2002), we introduce a three-dimensional concept of trust, referring to particularized, identity-based, and generalized trust. To date, a systematic comparative investigation of these three types of trust simply does not exist.

From our analyses we derive the following conclusions: First, drawing on the literature on trust, we concluded that different forms of trust can indeed be theoretically identified. More specifically, we have distinguished an intimate form of trust toward personally known people (particularized trust) from a more abstract trust in unknown people including strangers (generalized trust). Additionally, we have referred to identity-based trust that differs from the other two concepts with regards to the corresponding targets of and the foundations underlying the trust judgments. This theoretical structure was tested in confirmatory factor analyses using data from Switzerland and was contrasted with views

positing that there are only one or two dimensions of social trust. As a main finding, our empirical analyses support the three-dimensional trust-model. In other words, particularized, identity-based, and generalized trust emerge as three distinct constructs in our analysis. While the first two dimensions have already been the subjects of a few survey-based analyses, the identity-based form of trust has yet to be investigated in a comparative manner. This is somewhat surprising given the increasing cultural, religious, and ethnic fragmentation of western societies and the growing body of diversity literature that frequently makes reference to this form of trust.

Second, researchers often compare means and relations of latent variables across countries without subjecting their measurement to invariance tests. In the present study we explain why these tests are necessary and applied them to the constructs of social trust to test their comparability across cultural regions in Switzerland. In doing so, we checked for configural, metric, and scalar invariance. Guaranteeing metric invariance leads us to the conclusion that the meanings of particularized, identity-based, and generalized trust are most likely the same across these contexts. This is a critical condition for the use of the three constructs and their corresponding scales in cultural regions in Switzerland. Additionally, the measurement model reached the level of scalar invariance. In this regard, a comparison of the means of the three latent constructs between German, Italian, and French-speaking Switzerland is justified. In sum, there seem to be no culturally conditioned variations in the understanding and interpretation of the various forms of social trust. Furthermore, additional analyses show that a three-dimensional conception of social trust better reflects the empirical reality in several countries than a two- or one-dimensional approach. Frequently employed conceptions therefore require re-evaluation. Our results do not however challenge the value of previous analyses; instead, the present findings should primarily serve to enrich the discussion in empirical trust research with innovative considerations.

It has to be noted, however, that our results are only suggestive. Although they are a step in the right direction, we still need further systematic analyses beyond the single case of Switzerland. Future analyses should extend our preliminary cross-national studies and compare these models across a larger number of countries as well as investigate cross-country measurement equivalence.

Another limitation concerns the measurement of concepts. For instance, in our empirical analyses we relied on identity-based trust indicators that measure trust in people with identities that differ from the respondent's. We argue that the trust we have in a certain group that shares our identity is defined by the boundaries that separate our group from other categories and groups (Offe 1999, 63ff). Clearly, these indicators leave room for

discussion. More accurate data are however not currently available. At the same time rejecting the use of these data would preclude the possibility of empirical research in this area.

In this regard, future studies should draw on more differentiated data. Our analysis shows that individuals do not simply differentiate between trust targets they know and trust targets they do not know; trust judgments rather are much more complex. We therefore need survey questions that capture trust in persons belonging to a wide range of identities/categories, both shared and unshared by the respondent. Depending on the context, certain identities may be more decisive than others (e.g. ethnic categories should be more salient in ethnically heterogeneous contexts), and future analyses of identity-based trust might reveal that there are multiple dimensions of this kind of trust. Ideally, these trust questions should be as unambiguous as possible and should also specify the precise object of trust or distrust (see e.g. Hardin 2002). This would allow researchers to capture a more fine-grained picture of the network of trust relations that exists between individuals.

In addition, certain limits are imposed on our research design by the limited availability and reliability of trust items. In order to pin down the given dimensions of social trust in a more systematic manner, more precise estimates and measures of trust are needed. To identify the factors, future studies should include a minimum of three indicators per latent trust variable, as recommended by Brown (2006, 72). Moreover, when designing questionnaires to investigate social trust the positioning of the given questions should be considered very carefully so as to avoid methodological pitfalls (e.g. battery effects due to the location of questions).

Finally, while it was not our aim to investigate the consequences and foundations of different dimensions of social trust, future investigations of its causes and consequences should take the multi-dimensionality of social trust revealed in this paper into account. In this respect, using our findings and specifying how the distinction works to connect to different types of outcome measures would be another type of empirical contribution. This, however, was beyond the scope of this paper; our study instead aimed to construct the building blocks to be used as the foundation for similar future analyses.

# 3 Negative experiences and trust: A causal analysis of the effects of victimization on generalized trust*


## Abstract

Generalized trust is praised by many researchers as the foundation of functioning social systems. An ongoing debate concerns the question if and to what extent experiences impact individuals' generalized trust, as measured with the standard trust survey question. So far reliable empirical evidence regarding the causal effect of experiences on generalized trust is scarce. Studies either do not directly measure the quality of experiences or use designs that are prone to selection bias. In the present study we investigate a unique panel data set from Switzerland that contains measures of trust and measures of negative experiences, i.e. victimization. We employ change score analysis and "genetic matching" to investigate the causal effect of victimization on generalized trust and find no substantially strong effect that is consistent across panel data waves.



* This chapter is identical to a manuscript published in the European Sociological Review (Bauer 2014*b*). I would like to thank Diego Gambetta, Rudi Farys, Fabrizio Bernardi, Markus Freitag, Matthias Fatke, Marlène Gerber and four anonymous reviewers for their helpful comments and suggestions; This study has been realized using data collected by the Swiss Household Panel (SHP), which is based at the Swiss Centre of Expertise in the Social Sciences FORS and financed by the Swiss National Science Foundation.

## 3.1 Introduction

Do (negative) experiences influence generalized trust? Generalized trust is defined as "the belief that "most people can be trusted" (Uslaner 2002, 21) and may be more generally understood as a standard estimate of the trustworthiness of the average person one encounters (Coleman 1990, 104, Glanville and Paxton 2007). Besides praising generalized trust as an important ingredient for the functioning of societies, organizations, political and economic systems (Algan and Cahuc 2013; Barber 1983; Fukuyama 1995; Gambetta 1990; Herreros 2004; Kramer 1999; Nooteboom 2002; Uslaner 2002; Sztompka 1999) researchers debate to this day to what extent experiences impact generalized trust. A first view is that generalized trust is a stable expectation, a propensity innate or learned in early life but not linked to experience collected throughout one's life (Becker 1996; Giddens 1991; Jones 1996; Uslaner 2008*a*, 2002; Wilson 1993; Wrightsman 1992). A second view holds that experiences do very well matter for generalized trust (Coleman 1990; Freitag and Traunmüller 2009; Glanville, Andersson and Paxton 2013; Glanville and Paxton 2007; Hardin 2002). The empirical evidence regarding this question is mixed. A related debate concerns the costs of crime and more specifically the effects of victimization (Averdijk 2010; Braakmann 2011; Brand, Price and Britain 2000; Entorf and Spengler 2002; Fischer 1984; Lejeune and Alex 1973). It has long been argued that crime hurts societies because experiences in the form of victimization affect individuals' generalized expectations regarding others' trustworthiness and, as a consequence, individuals' inclination to cooperate with others.

We contribute to these two debates in the following way: First, while most trust research uses experience-based theoretical arguments (cf. Glanville, Andersson and Paxton 2013; Ingen and Bekkers 2013; Sturgis, Patulny and Allum 2009), few studies (for notable exceptions see Section 2) directly measure the quality of the actual experiences. Mostly studies assume that certain variables such as formal membership or frequent social interactions stand for positive experiences. By focusing on and measuring negative experiences we provide a direct investigation into the experience - generalized trust relationship. In general, this gap in research is somewhat surprising, since it is commonly claimed that trust is easily destroyed (Baier 1986; Slovic 1993). Second, while research on the direct costs of crime is more straight forward (Brand, Price and Britain 2000; Cohen 2004), the indirect costs have received far less attention. Evidence on the effects of victimization is largely based on interviews of non-randomly selected victims and not drawn from comparisons with suitable control groups (cf. Averdijk 2010; Fischer 1984; Lejeune and Alex 1973). Our study adds to these more qualitative studies and contributes to existing

knowledge. Third, ours is the first study to focus on the causal effect of negative experiences on trust. Instead of relying on cross-sectional data (cf. Brehm and Rahn 1997; Salmi, Smolej and Kivivuori 2007) we rely on several panel waves and employ change scores analysis in combination with matching which is a considerable step forward compared to earlier research. Our benchmark is an ideal thought experiment that we use to reveal potential threats to the validity of our findings.
Below we start by presenting arguments and evidence for two competing hypotheses. Then we elaborate further on the design of the study. Subsequently, we outline the data and the measures used. Then we present the empirical results before discussing the findings and drawing a conclusion.

## 3.2 Experiences and generalized trust: Hypotheses and evidence

In developing our hypotheses we have to bear in mind that we investigate the impact of negative experiences - that one collects with specific persons - on generalized trust, i.e. a standard estimate or standard expectation regarding others' behavior. The idea that individuals adapt their expectations regarding specific others and specific behaviors such as a neighbor who misbehaves and doesn't return the borrowed lawn-mower is relatively straightforward. In this case trust in the neighbor should change following the negative experience. However, the idea of expectation adaption is less straightforward with regard to the concept of generalized trust. Accordingly, a first scholarly position holds that experiences do not or do hardly matter for generalized trust. In contrast, it is a stable psychological propensity (Becker 1996; Jones 1996; Uslaner 1999, 2002; Wrightsman 1992; Couch and Jones 1997). Uslaner (2002) draws on Erikson (1968, 103) and suggests that generalized trust is largely unaffected by experiences with others such as friends and neighbors. Rather individuals will have high (or low) levels of generalized trust because of their early life experiences which are largely connected to their parents.[1] Therefore, generalized trust "is not experience-based trust" (Uslaner 2008*a*, 291). Besides, as argued above, experiences - negative or positive - are likely to affect our expectations regarding the specific trustees with whom we collect those experiences but less so our generalized expectations: "Although some victims reported a general mistrust of people as a consequence of victimization, their mistrust is often focused on groups of people that share demographic characteristics with the specific offenders that committed violence against them, notably immigrants and men" (Averdijk 2010, 128).

[1] There is also a debate on the impact of genes on trust (Oskarsson et al. 2012; Van Lange, Vinkhuyzen and Posthuma 2014).

Empirical research lends some support to this first position by showing that there is a strong correlation between generalized trust and optimism which, in turn, seems to be a stable trait that is rooted in childhood socialization (Uslaner 2002) and that generalized trust is rather stable throughout an individual's lifetime (Uslaner 2002, 162-165). Research investigating the impact of positive experiences (through proxy variables such as voluntary engagement or membership) partly finds no "causal" relationship with generalized trust. Ingen and Bekkers (2013) analyze five panel studies and find that the presumed positive causal effect of engagement on trust is most probably due to selection. Bekkers (2012) finds no effect of volunteering on trust relying on a 4-year panel study. Finally, Sturgis, Patulny and Allum (2009) find no causal effect of formal or informal connections on trust relying on the British Household Panel Study. Another study that relies on a panel of immigrants from Turkey, Pakistan and former Yugoslavia living in Denmark finds no effect of discrimination experiences through teachers on generalized trust (Dinesen 2010). Above arguments and evidence on the "irrelevance" of experiences lead to a first research hypothesis: *Negative experiences do not have a negative effect on generalized trust (H0).*

Other scholars argue that experiences do very well impact generalized trust (Coleman 1990; Glanville and Paxton 2007; Hardin 2002; Offe 1999; Rotter and Stein 1971; Burns, Kinder and Rahn 2003; Stack 1978; Yosano and Hayashi 2005), assuming that individuals should generalize from experiences with specific others. Especially, with regard to negative experiences, i.e. victimization, scholars have long argued that it might undermine individuals' sense of trust: "[V]ictimization [...] changes one's perceptions of and beliefs about others in society [...] by indicating others as sources of threat or harm rather than sources of support" (Macmillan 2001, 12). There are common psychological responses across victims and varying victimization experiences. These come in the form of a "shattering of basic assumptions held about themselves and their world" (Janoff-Bulman and Frieze 1983, 1). Even "minor" victimizations such as burglary or robbery may cause considerable suffering and lead to reactions such as anxiety, fear and depression (Janoff-Bulman and Frieze 1983, 2). The process of victimization can then be seen as a "process that involves rebuilding one's assumptive world" (Janoff-Bulman and Frieze 1983, 1). Hence, generalized trusting expectations regarding others' behavior may change in this process (Bard and Sangrey 1986; Fischer 1984; Lejeune and Alex 1973; Macmillan 2001; McCann, Sakheim and Abrahamson 1988).

Empirical research also supports this second position. Glanville and Paxton (2007) find that individuals develop a generalized expectation of trustworthiness based on their experiences with different groups of people in localized settings such as the neighborhood.

Similarly, Freitag and Traunmüller (2009, 798) find that trust in specific others such as family members can represent a foundation for more generalized trusting expectations. However, both of these studies rely on cross-sectional data. Glanville, Andersson and Paxton (2013) find that positive changes in informal social ties enhance trust relying on two panel waves. Li, Pickles and Savage (2005) investigate the British Household Panel Study and find that embeddedness in informal networks and neighborhood attachment (not simple membership) are related to higher generalized trust. Moreover, perceptions that one is treated fairly by political authorities seem to matter for generalized trust (Dinesen 2012; Kumlin and Rothstein 2010). Quantitative empirical evidence regarding negative experiences is scarce. Research based on the European Social Survey finds that individuals who perceive that they belong to a discriminated group have lower levels of generalized trust (Dinesen and Hooghe 2010). Brehm and Rahn (1997, 1016) rely on pooled cross-sectional data from the GSS and find that burglary victimization undermines generalized trust. Other cross-sectional analyses find effects of victimization experiences on generalized trust among young people in Finland and Denmark (Dinesen 2012; Salmi, Smolej and Kivivuori 2007). Generally, cross-sectional data is strongly limited when it comes to causal inference. In addition, there are different studies that investigate the effects of victimization with in-depth interviews. Fischer (1984, 169) interviews 50 victims and finds that victimization experiences are similar to "post traumatic stress disorders" with victims experiencing "distrust and suspiciousness". Averdijk (2010, 118f) interviews 41 victims and finds that they report a general mistrust of people as a consequence of their victimization, but often this mistrust is focused on groups similar to the offenders. Interviewing 24 mugging victims Lejeune and Alex (1973) find that assumptions of invulnerability and trust that were present before the event were abandoned thereafter. Although these more qualitative studies lack control groups, they clearly point to the negative reactions of victims. Altogether arguments and empirical evidence also give weight to a second research hypothesis: *Negative experiences do have a negative effect on generalized trust (H1).*

## 3.3 Design

We investigate two competing hypotheses, $H_0$ (no effect) and $H_1$ (negative effect). Causality is generally investigated departing from the counterfactual framework (Holland 1986; Rubin 1974) and we start by asking what experiment we could ideally carry out to capture the causal effect of interest (Angrist and Pischke 2008, 4). Ideally we would conduct a randomized field experiment both to maximize internal as well as external validity.

We would draw a large random sample from our target population (persons living in Switzerland) and measure the level of trust of all sample members by directly accessing their thoughts before and after the treatment. We would recruit homogeneous offenders that randomly treat half of the sample with exactly the same negative factual experience (treatment group) and leave the other half in peace (control group). Random assignment of the treatment would allow for estimating an unbiased (internally valid) causal effect since it assures that the treatment $D_i$ is unrelated to the potential outcomes (Angrist and Pischke 2008, 15). This ideal experiment would have strong external validity since the sample is representative of a larger Swiss population and the treatment is a real-life experience. Besides, we would control the timing of both, outcome measurement and treatment assignment. Clearly, this ideal experiment can not be realized for ethical and practical reasons. Thus, we have to resort to "natural" variation of our treatment, i.e. victimization across individuals. The described ideal experiment, however, serves as the benchmark to which we can compare our research design to reveal potential validity threats.

In what manner can we use observational data to approximate our ideal experiment (Angrist and Pischke 2008, 7)? In this study we rely on a panel study design which differs from the ideal in several respects. First, the treatment is not assigned randomly and there might be selection bias. Victimization is not random. Rather different theories (cf. Wilcox 2010) such as the lifestyle-exposure theory (Hindelang, Gottfredson and Garofalo 1978) emphasize that attributes such as gender or age are linked to different patterns of life that increase the risk of being victimized (see also Gottfredson 1984; Tseloni and Pease 2004). These individual characteristics are also likely to be related to our outcome variable generalized trust in that there are differences in trust levels between groups of age or gender for instance (see e.g. Robinson and Jackson 2001, Uslaner 2002, 155-156, 167f). Second, we have a random sample of households rather than individuals and there might be some inter-dependencies between household members. Third, although we have repeated measures of both outcome and treatment just as in the ideal experiment we do not control the timing of treatment and outcome measurement. The treatment occurs sometime between the yearly panel surveys and potentially the causal effect depends on the timing. Also, we might not have access to all sample members after the treatment (panel attrition). Fourth, in contrast to the benchmark we do not observe/measure outcome and treatment directly. We have to rely on self-reports by survey respondents and we have to think in how far these self-reports relate to factual reality. In our causal investigation we have to take all of these points into account.

We deal with the first problem, i.e. selection bias as follows: When assuming parallel

trends that is *the trend in generalized trust in the treatment group in absence of the treatment is equal to the trend in generalized trust in the control group*, we can identify the average effect of the treatment on the treated (ATET) by using change scores as outcome and estimating the parameters of the following model (Allison 1990; Morgan and Winship 2007):

$$\Delta Y_i = Y_{it} - Y_{it-1} = \beta_0 + \beta_1 \cdot D_i^* + e_i,$$

where $\Delta Y_i$ is the change in the outcome between first and second measurement, $\beta_0$ is an intercept term namely the average of the change in the untreated group, $\beta_1$ is the causal effect, the amount added to $\beta_0$ when the treatment dummy $D_i^*$ jumps to one. Finally, $e$ is some error for which we assume normal distribution and mean 0. This model assures that any stable unobservable confounder cancels out of the equation (Wooldridge 2010). In addition we match victims and non-victims using different covariates to balance out treatment and control group. While matching doesn't have any advantages regarding selection bias it has some other advantages (see e.g. Legewie 2012): After the matching process only those observations remain that are comparable between treatment and control group, i.e. observations characterized by common support with regard to the covariates (Morgan and Winship 2007, 117). Through this step we only include observations that are "potentially exposable" to the treatment (Holland 1986, 946). At the same time, matching treatment and control group on various covariates increases justification of the parallel trends assumption, since both groups are more similar. Moreover, matching procedures allow us to evaluate imbalance between treatment and control group and force us to think clearly about potential selection processes. Thus, it makes sense to add the matching step before estimating the change score model. To deal with the other three mentioned validity threats (household dependency, treatment timing, i.e. intensity, self-reports) we carry out robustness checks that are reported in the empirical section.

## 3.4 Data, measures and controls

The data come from the Swiss Household Panel study (SHP) that follows a random sample of households in Switzerland over time. It started in 1999 with 5074 households/12931 household members. In 2004 a second sample of 2538 households/6569 household members was added. Annual data collection is carried out by means of CATI. Using relatively reliable data from a single country is preferable when it comes to causal inference since several factors that may vary across countries are held constant.

Table 3.1: Trust and victimization questions across SHP waves

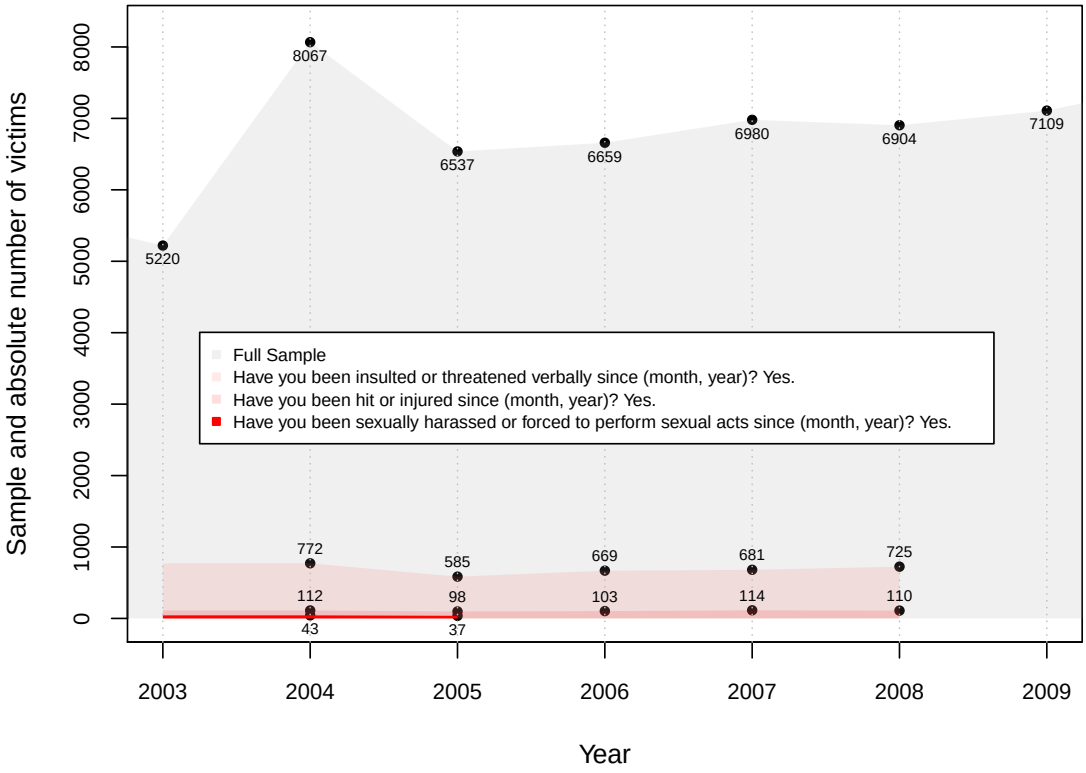
| Panel wave | '99 | '00 | '01 | '02 | '03 | '04 | '05 | '06 | '07 | '08 | '09 | '10 | '11 | '12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Social Trust ($Y$) | | | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Insulted or threatened ($D_{Threat}$) | | | | | | ■ | ■ | ■ | ■ | ■ | | | | |
| Hit or injured ($D_{Injury}$) | | | | | | ■ | ■ | ■ | ■ | ■ | | | | |
| Harassment ($D_{Harassment}$) | | | | | | ■ | ■ | | | | | | | |

Table 3.1 gives an overview of panel waves that contain measures of trust and victimization. Starting in 2002, the SHP contains the most widely used trust measure: *"Would you say that most people can be trusted or that you can't be too careful in dealing with people, if 0 means "Can't be too careful" and 10 means "Most people can be trusted" ?"* This question has received some criticism (Miller and Mitamura 2003; Nannestad 2008; Sturgis and Smith 2010), but it is the only question for which data is available across time both in national survey and international surveys and has been widely used in recent studies (e.g. Delhey, Newton and Welzel 2011; Dinesen 2013; Mewes 2014; Sønderskov 2011; Traunmüller 2011). Refraining from its use would mean to discard data from numerous surveys such as the here investigated panel survey. Besides, this question seems to function fairly well within the Swiss context despite cultural and linguistic barriers and strongly correlates with trust in strangers (Freitag and Bauer 2013). And there is further evidence that especially in Switzerland respondents associate this question with outgroups (Delhey, Newton and Welzel 2011). We explicitly assume (as previous researchers have done implicitly) that differences in question interpretation across respondents are not linked to our treatment net of covariates.

There are several questions querying negative experiences from wave 2004 to 2008. Respondents were asked: *Have you been insulted or threatened verbally since (month, year)? Have you been hit or injured since (month, year)? Have you been sexually harassed or forced to perform sexual acts since (month, year)?*[2] Therefore, we can draw on considerable amounts of data for the treatments we are interested in. Figure 3.1 gives an overview of our data and of the whole sample of respondents and shows how many respondents in the respective year have been victimized. It illustrates that the share of individuals suffering graver victimization such as harassment is relatively low which represents a challenge in terms of estimation.

[2] In wave 2002 and 2003 respondents were asked if they had been attacked or threatened. This question was dropped in 2004 because it confounds verbal and physical victimization.

Figure 3.1: Full sample and absolute number of victims



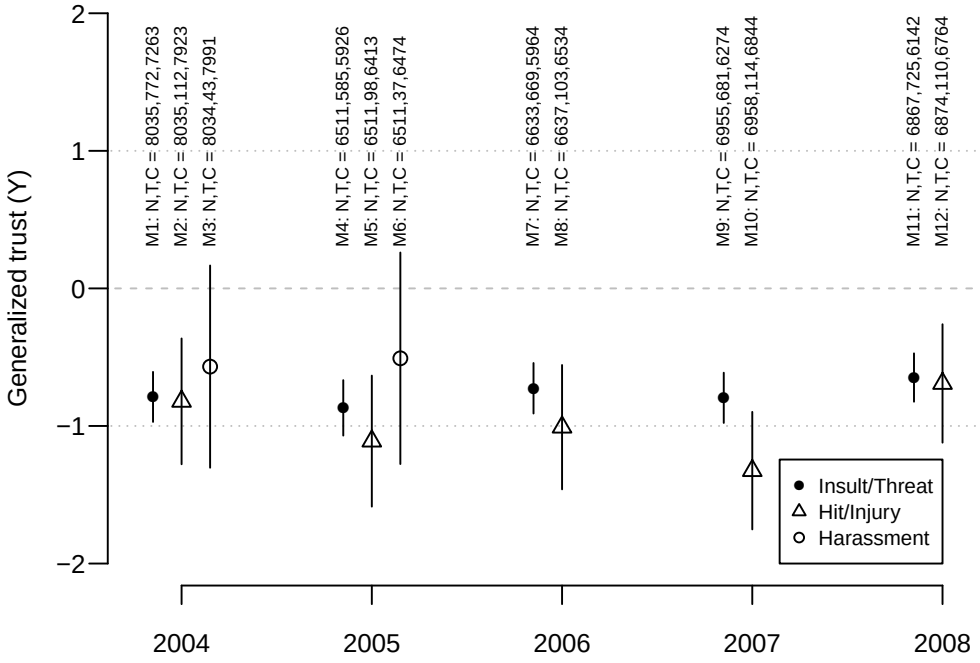

*Note:* Graph displays total number of realized individual interviews in the respective years and the number of respondents who answered "yes" to three different victimizations questions querying the occurrence of negative experiences in the previous year; Source: Swiss Household Panel (SHP).

In general, we assume that selection on stable covariates is the main problem regarding our causal relationship. Certainly, there are attributes that might change between t-1 and t, but they only represent a problem if they are systematically linked to victimization and generalized trust. For instance, one can hardly make a strong argument for a directed impact of changes in civic engagement (Ingen and Bekkers 2013) or informal social ties (Glanville, Andersson and Paxton 2013) (see also Section 2) on the probability of being victimized. Thus, we mainly control for the classic sociodemographic variables. We control for gender, age, education, income and minority status. All of these attributes tend to be linked to certain life patterns and, thus, potentially to victimization (Averdijk 2010) and may also be linked to generalized trust. Moreover, we control for unemployment status, job loss since the last panel wave and active membership in organizations. Finally, repeat victimization is increasingly discussed among criminologists (Averdijk 2010; Farrell, Phillips and Pease 1995; Polvi et al. 1991). Just as some of the

variables above, repeat victimization can be seen as a proxy for other factors. For instance, repeat victims are likely to live in deprived contexts which might also affect their levels of generalized trust. Table A6 in the appendix presents summary statistics for all variables used in the analysis.

## 3.5 Empirical results

Figure 3.2: Naive estimates for negative experiences on trust (Table A7)




*Note:* Symbols are point estimates for 12 bi-variate regression models; N = Number observations of which T are victims and C are non-victims; Bars are 95% confidence intervals; Source: Swiss Household Panel (SHP).

Due to the vast amount of data and the resulting high number of models we analyze (across panel waves and treatments), we chose to display the results graphically. Model summaries can be found in the appendix. Figure 3.2 (see Table A7) summarizes the estimates of 12 bi-variate regression models, each estimating the naive treatment effect for the respective year. The outcome variable in M1-M12 is trust at time t. The victimization experience has occurred sometime during the year before t, but is also queried at t. In other words, the effects displayed are simply the difference between the trust average of

those that reported an insult/threat, being hit/injured or being harassed with those that did not respectively. For all the victimization experiences the naive estimate of the causal effect is negative and substantially high, considering that generalized trust is measured on an 11-point scale. Logically, uncertainty is higher for those victimization experiences for which we have fewer data points. Unfortunately, scarce data precludes any inference for victims of harassment. Although the point estimate is negative, the 95% confidence intervals are larger and cross 0. For this reason we exclude the harassment treatment in subsequent analyses. Clearly, these naive estimates of the causal effect are likely biased in either negative or positive direction because of selection.

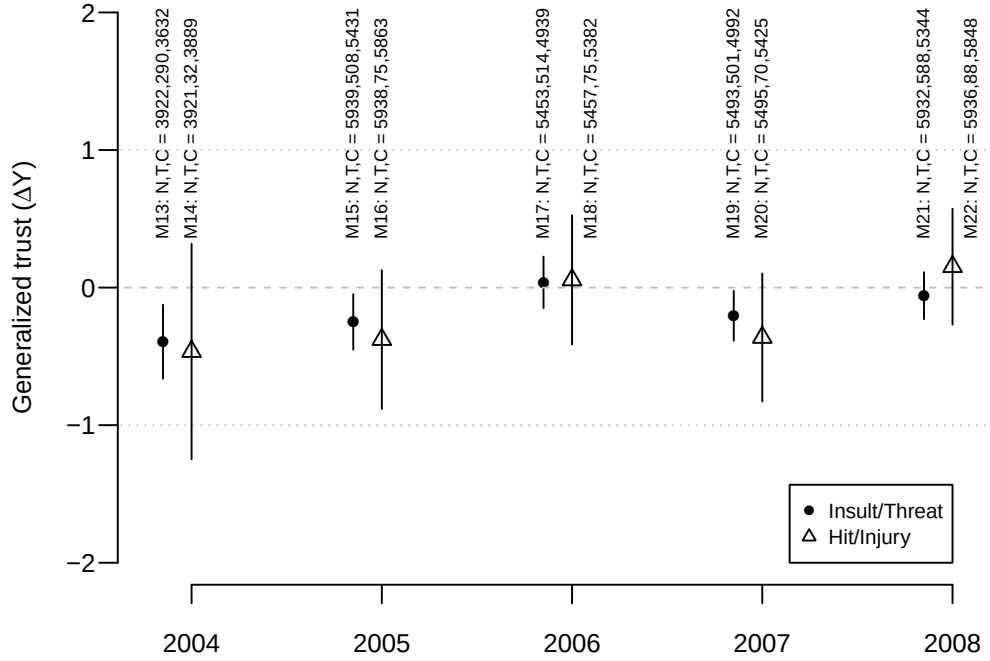
Therefore, in a second step we use the change score $\Delta Y_i = Y_{it} - Y_{it-1}$ instead of $Y_{it}$ as outcome variable. Following $H_0$ we would assume that the naive effect of victimization on generalized trust is due to selection rather than due to a direct effect of victimization on generalized trust. Hence, our second analysis should result in lower estimates of the treatment effect. $H_1$, on the other hand, holds that victimization experiences do matter for generalized trust. Figure 3.3 displays the estimates for the different panel waves (see Table A8). We see that this design changes the picture substantially. The effects of most of the victimization experiences become weaker and "insignificant" on usual levels. Although, we still find "significant" effects for threats in 2004, 2005 and 2007 using this more rigorous strategy, these are much smaller in substantial size than before.[3] In general, these results illustrate how important it is to investigate causal effects across panel data waves. Results obtained for single panel waves may not hold across waves. The presented effects correspond to the difference in trust trends comparing the treatment group with the full control group of untreated that is all respondents who did not report to have been victimized at that point in time.

In a third step we balance treatment and control groups using "genetic matching" (Sekhon 2011). We match individuals on gender, age, education, membership, income, victimization (in the previous year), unemployment status, job loss within the respective panel period and minority status.[4] The difference to M13-M22 is that we now estimate effects using a control group that is comparable regarding these matching variables. Results are displayed in Figure 3.4 and Table A9. Balance statistics across panel data waves show that there are strong differences between the unbalanced treatment and control groups we used in step two. Before the matching procedure individuals in the control groups

[3] Uncertainty, for the 2004 estimates are higher because the sample of respondents in 2003 which we need to calculate the trust change score was smaller.

[4] In additional models we controlled for the cumulative history of victimization i.e. the sum of victimizations in previous years. However, this did not change the results (analyses available upon request).

Figure 3.3: Estimates for victimization on Δ trust (Table A8)

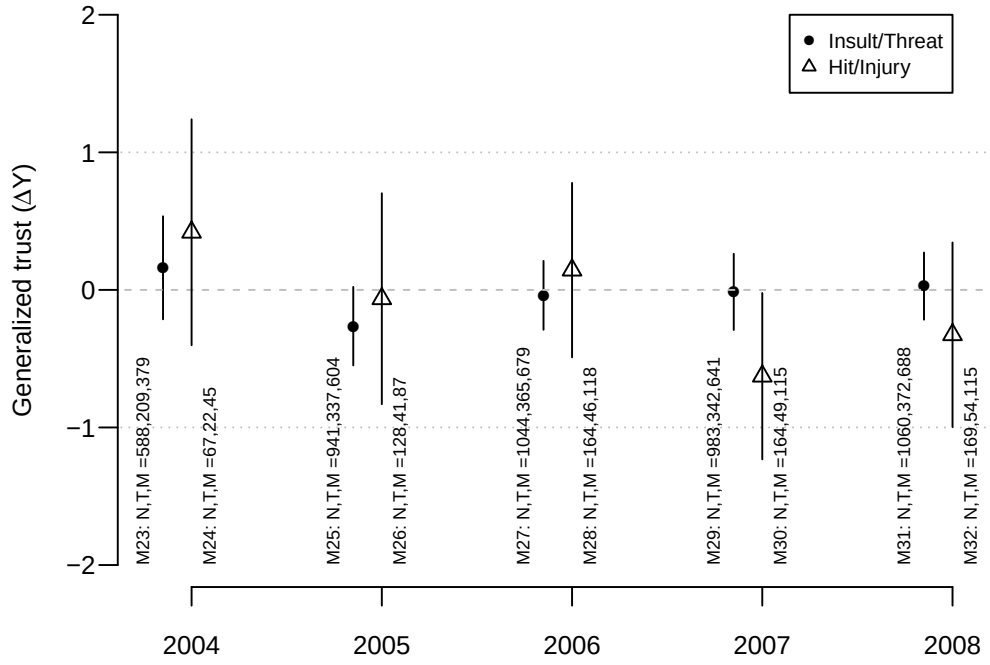



*Note:* Points are point estimates for 10 bi-variate regression models; N = Number observations of which T are victims and C are non-victims; Bars are 95% confidence intervals; Source: Swiss Household Panel (SHP).

were generally older, better educated and had higher income. Besides, there were differences in gender composition. After matching these differences are reduced massively and generally not significant (see Table A10). The results seem to corroborate our findings above. With few exceptions the point estimates are now very close to zero and 95% confidence intervals mostly cross the zero. In addition we pooled the matched data sets across years: The weighted average of the estimates is -0.04 for threat (s.e.= 0.06, N = 4616) and -0.17 for injury (s.e.=0.16, N = 692). Using this more rigorous estimation strategy and design we conclude that we do not find a substantially strong causal effect that is stable across panel data waves.

In a fourth step we consider further threats to the validity of our conclusions above as exposed by our ideal experiment. First, we measure victimization through self-reports at the end of each time period. Factual experiences of differing objective intensity could lurk

Figure 3.4: Estimates for victimization on Δ trust after matching on gender, age, education, membership, income, victimization (previous year), unemployment status, job loss and minority status (Table A9)



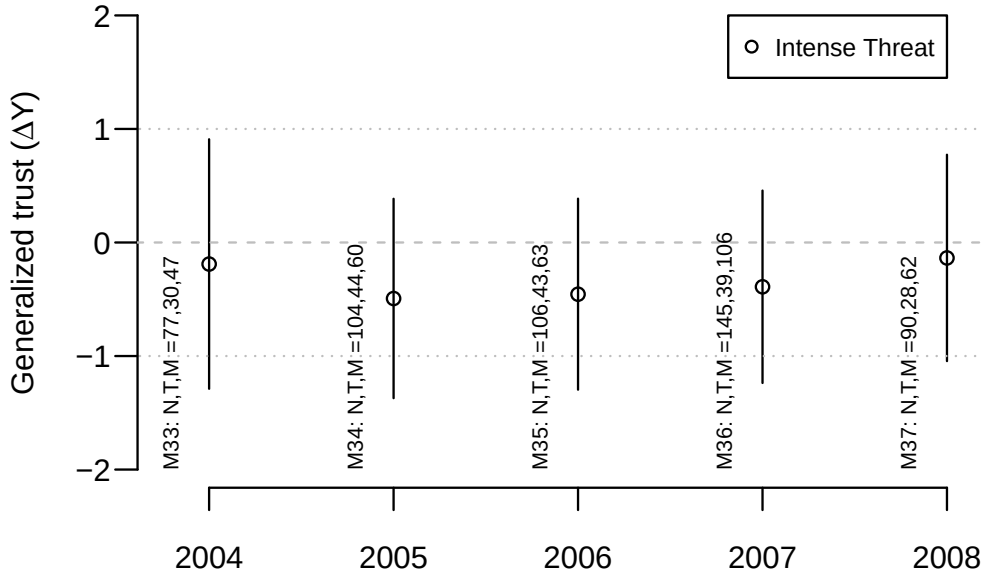

*Note:* Symbols are point estimates for 10 multivariate regression models; N = Number of weighted observations of which T are victims and M are matched non-victims; Bars are 95% confidence intervals; Source: Swiss Household Panel (SHP).

behind an individual's "Yes" (*Measurement inequivalence*).[5] Also, negative experiences might occur at different points in time between the two panel waves (*Timing of the victimization experience*). Assumably effects of victimization are immediate psychological effects most of which disappear after some months (Denkers and Winkel 1998). From 2004 to 2008 respondents that answered that they had been victim of a threat or insult were also asked: *"Are you still affected by this [victimization], if 0 means "not at all" and*

[5] Above we had questions for different victimization experiences, however, we could not find reliable evidence that being hit or injured has a stronger effect than e.g. an insult or threat (see Figure 3.2). The low numbers of respondents for the "more harsh" victimization experiences preclude any feasible conclusions in this regard (even more so since social desirability may decrease reports of the latter).

*10 "a great deal?"*. In this additional analysis we solely focus on threats.[6] Potentially, individuals who score higher on this scale do so because of one of the above mentioned reasons (stronger factual experience, recent timing of the experience), in other words, a causal effect might only be found for intense negative experiences. Accordingly, we reestimated Models M 23, 25, 27, 29, 31 (change scores + matching), but now we compare the non-victims[7] with those that were insulted/threatened and score from 7 to 10 on the intensity scale. Figure 3.5, Table A11 and Table A12 summarize the results. We find that the effects are substantially weak and insignificant across the five waves. Hence, there is no strong counter evidence against our previous conclusions.

Figure 3.5: Estimates for victimization of high intensity on Δ trust after matching on gender, age, education, membership, income, victimization (previous year), unemployment status, job loss and minority status (Table A11)




*Note:* Symbols are point estimates for 5 multivariate regression models; N = Number of weighted observations of which T are victims and M are matched non-victims; Bars are 95% confidence intervals; Source: Swiss Household Panel (SHP).

[6] We assume that individuals that have been hit/injured or harassed are contained in the group that reports an insult or threat. Besides, we assume that there is less underreporting for this question than for the other two indicators which is desirable.

[7] Control groups are generated from individuals in the same panel wave that did not experience an insult or threat.

Second, when comparing victims with non-victims we make the assumption that non-victims are not influenced by victims' negative experiences. However, this assumption may be violated when a non-victim lives in the same household as a victim. The victim's negative experiences might also affect the trust levels among other household members. If these other household members are part of our control group it biases our estimates. We checked whether there are households with multiple victims. This number is very low and thus can be neglected in our view.[8] Thereafter, we reestimated Models 23-32 with a modified data set that excludes non-victimized individuals that live together with a victim. The results do not deviate significantly.[9] Third, we account for the fact that the causal effect might be heterogeneous for different levels of our outcome variable. For instance, individuals with extremely low levels of trust may remain unaffected, i.e. a trust starting value of 0 at t-1 cannot decrease. In general, individuals with extreme values might be less affected by experiences. To test for this possibility we reestimate Models 23-32, using only respondents with moderate initial trust levels (3 to 7) and subsequently only respondents with high trust levels (7 to 10). All effects in the 20 models we re-estimated (for threat and injury) are of negligible substantial size. In other words, our overall conclusions seem to hold in light of these additional robustness checks.[10]

## 3.6 Discussion and conclusions

The aim of this article is to contribute to the debate on the relationship between experiences and generalized trust. Using change score analysis combined with matching we find no causal effect that is substantially strong and consistent across panel data waves. Our findings support the notion that generalized trust as measured with the standard survey question represents a rather stable expectation that is only marginally influenced by victimization experiences. This, somewhat contradicts earlier findings for victimization or proxy variables of positive experiences (Brehm and Rahn 1997; Glanville, Andersson and Paxton 2013; Li, Pickles and Savage 2005; Salmi, Smolej and Kivivuori 2007) and

[8] Across waves 2004-2008 the number of households that contain more than one victim never exceeds 21 out of 1600 to 2005 households respectively.

[9] Results are available upon request.

[10] Another issue is panel attrition: In general the SHP is "not particularly selective with respect to important socio-demographic or -economic variables" (Lipps 2007, 63). Attrition might potentially bias our estimates. If victims drop out between two waves and they are special in that they display higher negative changes in trust than those victims that stay in the survey we would underestimate the causal effect. Unfortunately, we cannot know whether respondents that dropped out have been victims because they are not present in the second wave when we ask for the victimization experience. However, we carefully assume that this is not the case or otherwise that the numbers of drop out victims with a stronger trend in trust is so small that they do not matter.

is more in line with results that find no effect of experiences (Ingen and Bekkers 2013; Uslaner 2002).

Nonetheless, more studies are needed to corroborate our findings, opening multiple avenues of further research. First, our results need to be embedded in the larger context of experience-trust research. Despite our findings it is still possible that negative experiences do change victims' specific expectations regarding the offender and others that share his or her characteristics (Averdijk 2010). These more specific trust expectations should matter when it comes to (non-)cooperation with these persons or groups. Applying the idea of trust radius (e.g. Delhey, Newton and Welzel 2011) we would probably find that victims' trust levels remain unchanged for the majority of people, however, trust in persons or groups with offender characteristics decreases. As a consequence they are excluded from a certain trust radius. To capture these more subtle facets it is necessary to collect data that include more information on the attributes of the respective offenders and subsequently also data on victims' and non-victims more specific trust expectations regarding different trustees. Generally, more specific trust measures would allow for more sophisticated analyses of the experience - trust nexus (Bauer 2014*a*).

Second, in this study we find almost no evidence for a direct causal effect of victimization experiences. The strong selection bias shows that other factors do matter, in particular factors that affect both individuals' generalized trust and their probability of victimization. Presumably individuals form their expectations from directly observing others' behavior and apprehending others' negative experiences. Hence, even without direct victimization, contexts such as a deprived dangerous neighborhood should matter. In line with this idea, there is evidence that fear of crime is related to generalized trust (Uslaner 2002, 109). More refined longitudinal data on individuals' observations of others' untrustworthy behavior, on experiences in their social networks and the contexts in which they live is necessary to test these arguments and enhance previous contextual analyses (cf. Marschall and Stolle 2004; Ross, Mirowsky and Pribesh 2001; Traunmüller 2011).

Third, further systematic analyses beyond the single case of Switzerland would be insightful. To our knowledge the Swiss panel data set used in this study is the only data set that contains appropriate measures and is suited for causal inference. However, it is likely that the impact of victimization on generalized trust depends on the context. Swiss victims can rely on arrangements to deal with the psychological consequences of their experience. Besides, Switzerland possesses a comparably efficient system of justice that punishes offenders. In less developed countries these conditions might not apply and victimization experiences may be more extreme on average. These speculations need to be

investigated empirically. In general, a more thorough understanding of the foundations of trust can only be attained if we are successful in unraveling the complex relationship between trusting expectations, childhood experiences, experiences in later life and the contexts and social networks in which humans are embedded.

# 4 Direct democracy and political trust: Enhancing trust, initiating distrust - or both?*


## Abstract

This study investigates the relationship between direct democracy and political trust. We suggest a solution to the controversy in research centering on positive versus negative effects of direct democracy by analytically differentiating between the availability of direct democratic rights and the actual use of those rights. Theoretically, greater availability of direct democratic rights may enhance political trust by increasing citizens' perception that political authorities can be controlled as well as by incentivizing political authorities to act trustworthily. In contrast, the actual use of the corresponding direct democratic instruments may initiate distrust as it signals to citizens that political authorities do not act in the public's interest. We test both hypotheses for the very first time with sub-national data of Switzerland. The empirical results seem to support our theoretical arguments.



* This chapter is identical to a manuscript, co-authored with Matthias Fatke and published in the Swiss Political Science Review (Bauer and Fatke 2014). First and foremost, my gratitude goes to my co-author Matthias Fatke. Also, I'd like to thank Markus Freitag, Adrian Vatter and Marc Bühlmann for valuable feedback on earlier versions of this manuscript as well as the editors and anonymous reviewers of the *Swiss Political Science Review* for their comments and suggestions.

## 4.1 Introduction

Can direct democracy enhance citizens' trust in political authorities or does it indeed initiate distrust (Dyck 2009)? The concept of political trust has been the subject of numerous studies and its supposed decline is an evergreen in the public debate (Levi and Stoker 2000). Moreover, trust is regarded as an essential resource for the functioning of democratic systems as it "provides leaders more leeway to govern effectively and institutions a larger store of support regardless of the performance of those running the government" (Hetherington 1998, 803).[1]

Or put more metaphorically, "political trust functions as the glue that keeps the system together and as the oil that lubricates the policy machine" (van der Meer and Dekker 2011, 95). In recent years scholars as well as commentators were quick to diagnose a lack of trust in political authorities (Norris 2011, cf.), be it due to the financial crisis, political scandals, lack of accountability, or a political system that fails to give citizens a voice.

In this respect, participatory democrats and proponents of direct democracy invoke that citizens can be "educated" by direct democratic institutions (Smith and Tolbert 2004), in a sense that people in direct democracies participate more in politics (Dyck and Seabrook 2010; Tolbert and Bowen 2008; Tolbert, Grummel and Smith 2001; Tolbert and Smith 2005), are more socially engaged (Boehmke and Bowen 2010; Tolbert, McNeal and Smith 2003), protest less (Fatke and Freitag 2013), show more interest and knowledge in politics, and are more supportive and efficacious (Bowler and Donovan 2002; Bühlmann 2007; Mendelsohn and Cutler 2000; Schlozman and Yohai 2008; Tolbert, McNeal and Smith 2003; also contrary Dyck and Lascher Jr. 2009). This suggests that increasing people's influence in politics promises to be a cure against the current crisis of democracy (Cain, Dalton and Scarrow 2003). But can direct democracy really "repair the frayed ties" between citizens and political authorities (Citrin 1996, 268)?

Recently, researchers lay greater focus on the impact of context for political trust (Zmerli and Hooghe 2011). In view of the relevance of the relationship between direct democracy and political trust, it is thus even more surprising how little research has been carried through so far that actually tests the influence of direct democracy on political trust. Indeed, to our knowledge only three empirical studies can be found:[2] Hug (2005) presents a macro-analysis of 15 post-communist countries and finds no significant relationship; Citrin (1996) and Dyck (2009) analyze data from the United States whereas Citrin finds no difference in aggregate trust between initiative and non-initiative states, Dyck in fact

[1] Cf. Sztompka (1999, 156) and a recent study by Marien and Hooghe (2011) for further arguments.

[2] Despite the title of their book chapter, Smith and Tolbert (2004) analyze external political efficacy rather than political trust.

reports a negative influence of direct democracy on political trust. Hence, he contradicts the optimistic expectations of participatory democrats. In general, empirical studies so far have been limited to the USA (and some Eastern European countries).
Therefore, we want to shed further light on the relationship and suggest an answer to the controversy between direct democratic promises and the negative (or, at least, ambiguous) empirical evidence. First, we argue that controversial scholarly positions might to some extent be based on different conceptions of direct democracy. A first conception focuses on the institutional barriers to the use of direct democratic instruments. A second conception focuses on the actual use of direct democratic instruments. For both of these conceptions of direct democracy we expect different effects on political trust. Second, we investigate this relationship for the very first time in a country considered to be the most direct democratic country in the World, Switzerland. With both a long tradition and a wide array (and variation) of direct democratic instruments, the Swiss cantons provide ideal grounds for our empirical analyses.
The article is organized as follows: We start by presenting the two concepts that are of interest here, direct democracy and political trust in the Swiss context. Next, we outline and explain the mechanism between those two concepts, in other words why one should expect direct democracy to increase or decrease political trust. Subsequently, we elaborate on the operationalization of concepts, discuss potential confounding factors and present our methodological approach. Afterwards, we present our empirical results as well as robustness checks and some further analyses. Finally, our findings will be summarized and discussed in the conclusion.

## 4.2 Direct democracy and political trust

Direct democracy and political trust are widely-studied concepts in political science. In its most basic sense, trust is a relational concept in that it exists between a truster and a trustee, and the former makes herself vulnerable to the latter since the trustee has the capacity to do her harm or betray her. Trust is seldom unconditional in that it is "given to specific individuals or institutions over specific domains" (Levi and Stoker 2000, 476). Trust judgments generally reflect beliefs about the trustworthiness of the trustee. Trustworthiness can be generally equated with a trustee's commitment to act in the truster's interest (Levi and Stoker 2000, 476; cf. also Hardin 2002). Political trust, a subconcept of trust, can be conceived as a judgment made by an individual with regard to a specific political actor or institution, for example governments, parties and administrations (Levi and Stoker 2000). In sum, political trust then can be understood as an individual's ex-

pectation that a political actor will act in her interest.[3]

Generally, it is important to differentiate different targets of political trust. For instance, Hibbing and Theiss-Morse (1995, 15 et seq.) investigated attitudes toward different political institutions and lamented that explanations of (the crisis of) confidence in the political system display a major deficiency, namely the inattention to components of the political system.[4] Empirically, trust levels differ considerably across sub-national entities and for different political institutions (Freitag 2001). Thus, differentiating between institutions as well as sub-national entities seems essential. Since we compare cantons, trust in cantonal authorities is the variable of interest in our analysis.

Direct democracy, our explanatory variable, is an inherent feature of the Swiss political system. In fact, Switzerland with its long tradition of direct democratic participation is often considered to be the most direct democratic state in the World (Schmitter and Trechsel 2004). Swiss citizens have a wide array of direct democratic instruments at their disposal to decide directly on issues through popular votes. On the cantonal level, these instruments consist of the constitutional initiative, the legislative initiative, the legislative referendum (in optional and mandatory form), and the fiscal referendum (also in optional and mandatory form). The specific configurations of these direct democratic rights, however, vary substantially from canton to canton. Institutional barriers to a direct democratic process are the number of signatures needed, the respective time span allotted to launch initiatives and optional referendums, as well as the financial threshold for fiscal referendums. Whereas in some cantons these barriers are low, facilitating the exercise of direct democratic rights, in other cantons the requirements are so high that direct democratic processes are hardly possible.

However, extensive direct democratic rights do not necessarily imply that the correspond-

[3] Regarding the origins of political trust, Mishler and Rose (2001) refer to two large theoretical traditions. On the one hand, cultural theories hypothesize that trust in political authorities is exogenous with regard to political variables. Accordingly, these theories assume that political trust is generated outside of the political sphere. People have beliefs that are based on cultural norms which they have learned during early-life socialization (Mishler and Rose 2001). For instance, scholars like Putnam (1993) and Inglehart (1997) argue that political trust is an extension of interpersonal trust that is projected onto political authorities. On the other hand, institutional theories hypothesize that political trust is politically endogenous and a consequence of the performance of political authorities (Mishler and Rose 2001). This is, obviously, much in line with the reasoning of neo-institutionalism. Citizens evaluate performance more or less rationally. Political authorities that do not perform well generate distrust; political authorities that perform well generate trust.

[4] Well known is also the debate about the meaning of the decline of trust in government in the United States. Miller (1974) and Citrin (1974) argued whether this decline mirrored a rejection of the political system and the institution "government" *per se* or rather a rejection of the incumbent government. This debate emphasizes the importance of distinguishing between regime and the authorities, but failed to acknowledge the different "vital objects of support" in modern political systems namely political institutions (Hibbing and Theiss-Morse 1995, 16).

ing instruments are frequently used by citizens. Although neither institutional barriers nor use of direct democratic instruments can be viewed as entirely independent (Eder, Vatter and Freitag 2009), they are not highly correlated with one another in the Swiss case (Barankay, Sciarini and Trechsel 2003; Stadelmann-Steffen and Vatter 2012). When investigating the relationship between direct democracy and political trust, it is crucial to take this distinction into account. Reflecting the nuanced conception of institutions as both "rules-in-form" as well as "rules-in- use" (Sproule-Jones 1993), we also differentiate between the formal institutional rights and the actual use of direct democratic instruments in our analysis. Especially, with regard to their impact on citizens' attitudes and evaluations, the theoretical arguments differ fundamentally as we will outline below.

## 4.3 Theory and hypotheses

Whether direct democracy has a positive or negative (or, for that matter, no) effect on trust is, of course, ultimately an empirical question. Nevertheless, differences in theoretical predictions and ambiguous empirical evidence may be due to different conceptions of direct democracy. As noted earlier it is important to make a distinction between the *availability of direct democratic rights* and the *actual use* of the corresponding direct democratic instruments. It seems worthwhile considering these conceptions separately and discussing in what way these conceptions are related to political trust. Moreover, we take the above mentioned distinction between the individual truster and the trustee (the cantonal authorities) into account when arguing how individual political trust is affected by direct democracy.[5]

### 4.3.1 Availability of direct democratic rights and political trust

How does the institutional availability of direct democratic rights affect the trust relation between citizens and political authorities? As noted previously, direct democratic instruments may enhance citizens' control of and influence on political authorities. Departing from a veto player perspective Hug and Tsebelis (2002) analyze multi-dimensional models and show that the availability of direct democratic instruments enhances the agenda-

[5] In doing so, we depart from a neo-institutional perspective, which focuses explicitly on the relation between institutions and individuals (Huckfeldt, Plutzer and Sprague 1993). In that sense, institutions offer and alter incentive structures that in turn affect individual behavior and preferences (Kaiser 1997, 421; Mayntz and Scharpf 1995, 43). Put differently, individuals form their preferences within a contextual framework of institutions that incentivize behavior (Hall 1986; Immergut 1998; Offe 2006). Hence, direct democratic institutions adopt the role of explanatory variables affecting individuals.

setting power of the median voter. Elaborating further on this argument, Hug (2004) investigates policy consequences of direct democracy and argues that policies are closer to the median voter's preferences than without direct democratic instruments present. This, as Hug (2005) claims, should also manifest itself in higher levels of political trust because policies in direct democracies are more in line with the voters' wishes. Similarly, Citrin (1996, 286) hypothesizes that "initiatives and referenda impel governments to revise their policies so as to take account of majority opinion and that doing so ultimately raises the public's trust in established institutions."

Hence, extensive direct democratic rights enhance a citizen's role as a veto player in the political process. Whereas political authorities in purely representative democracies are not that closely tied to their citizens as they can only be voted out of office at the end of the legislative turn, by contrast in direct democracies citizens can keep their agents on a much shorter leash. More precisely, availability of direct democratic rights should affect both truster and trustee in the trust relation. *Directly*, the truster perceives that she has a better capability to *control the trustee*. Put differently, extensive direct democratic rights give citizens the perception of ability to ensure the trustee's commitment to act in the interest of the truster. With such instruments at hand, citizens as principal in the democratic process are aware that they can make sure that their agent acts the way they want him to. The result is a more favorable trust judgment.[6]

Second, there is an *indirect* effect via the trustee. The trustee may *anticipate the possibility* of control and corrections by the truster and accordingly behaves more trustworthily. Hence, extensive direct democratic rights do not only affect the truster directly, they also provide an incentive for the trustee to behave more trustworthily and to act in the interest of the truster. As a result political authorities should be more responsive when direct democratic rights are available in the sense that they anticipate citizens' preferences and take them into account in their policy-making and political decisions (Papadopoulos 2001).[7]

[6] Underscoring this connection, Bühlmann (2007, 244) concludes in his study that already the mere presence of direct democratic rights (and not their actual use) has an effect on political support. Moreover, Bernhard and Bühlmann (2011) find that direct democratic rights increase political efficacy and Scheidegger and Staerklé (2011) find that the perceived political powerlessness is related to political trust.

[7] Akin to this logic it is argued that direct democratic rights result in less mismanagement, less corruption and less abuse of power (Citrin 1996). Moreover, Kirchgaessner, Feld and Savioz (1999) find that there is less public spending, less public debt, and higher GDP in direct democracies. Similarly, Freitag and Vatter (2000) show a positive effect of direct democracy on economic performance. Generally, such positive effects of direct democracy are crucial for the citizens' perception of government performance, which in turn could positively affect political trust.

Increased trustworthiness by the trustee should, in turn, positively influence the trust judgment by the truster. Just as van der Meer and Dekker (2011) link trustworthy behavior of the state to the subjective evaluation by trusting citizens, it seems reasonable that a successful trust relation as such facilitates a virtuous circle of trustworthiness and trust development. All in all this leads us to hypothesize: *The more extensive direct democratic rights in a canton, the higher political trust should be* ($H_1$).

### 4.3.2 Actual use of direct democratic rights and political trust

As we outlined before, the positive effect of direct democratic rights does not necessarily apply to the actual use of these rights. Above we argued that the mere possibility to sanction the trustee via direct democratic instruments can enable a trust relationship between citizens and political authorities. These sanctioning instruments of the principal hang over the agent like the metaphorical "Sword of Damocles." However, just with any trust relation, the trust relation between citizens and political authorities suffers if the truster observes the necessity of her sanctions. Hence, frequent use of direct democratic instruments should have the opposite effect than the mere availability thereof.

Again, the actual use should affect both the truster directly, as well as indirectly via the trustee. First, the direct effect on the truster is precisely that citizens, who frequently observe sanctioning of political authorities through the application of direct democratic instruments gain the belief that their agents do not act how they are supposed to since direct democratic processes are obviously necessary to correct their actions. In short, political authorities that need correction cannot be trusted. To this point Citrin (1996, 286) notes that the application of direct democratic instruments decreases the authority of elected officials. Perceiving the necessity of sanctions despite the very existence of such a "Sword of Damocles" intensifies the disappointment by citizens as the trust they have put into their political authorities by voting them into office is betrayed (Dyck 2009, 544).

Second, frequent use of direct democratic instruments affects the trustee, too. If political authorities are constantly sanctioned and corrected they do not feel the same obligation to honor the trust of being voted into office. They might simply follow their own agenda rather than acting trustworthily toward their citizens.[8]

Moreover, the implementation of direct legislation is generally beyond the influence of citizens. Political authorities can therefore "steal" initiatives at the implementation stage

[8] Even if political authorities are more responsive as a result of these institutions this might have a negative effect. Acknowledging higher responsiveness through direct democracy, "citizens become more aware that without their input, elected representatives shirk" (Dyck 2009, 546).

(Gerber et al. 2001). Obviously, citizens perceiving this dilution lose trust as a consequence. As repercussion on the citizens, untrustworthy behavior by political authorities inhibits any successful trust relation with the citizenry. Instead, a setting of frequent votes on initiatives and referendums widens the scope and intensity of political conflict between citizens and political authorities (Dyck 2009, 545). In sum, we hypothesize that there is a negative effect of the actual use of direct democratic instruments: *The more extensive the actual use of direct democratic instruments in a canton, the lower political trust should be* ($H_2$).

## 4.4 Research design

Before turning to the empirical investigation, we briefly outline how the concepts are measured and present other individual as well as contextual factors that should be controlled for. Table A13 in the appendix summarizes the operationalization of all variables, Table A14 in the appendix provides descriptive statistics.

Political trust in cantonal authorities is measured with the following question: "I will read the names of some important institutions and organizations to you. Please tell me each time, how much trust you have in this institution, if '0' means 'no trust' and '10' means 'complete trust'." Respondents can then choose how much trust they have in "cantonal authorities" on an 11-point scale. We measure the *availability of direct democratic rights* with an index calculated by Fischer (2009). First suggested by Stutzer (1999), this index considers availability and barriers for each of the four direct democratic instruments in the Swiss cantons: the constitutional initiative, the legislative initiative, the legislative referendum, and the fiscal referendum. Values between one and six reflect the legal requirements for each instrument in terms of required signatures, time period to collect signatures, in the case of the legislative referendum, whether it is optional or mandatory, and for fiscal referendums, the financial threshold. The resulting four sub-indices are averaged into one index.[9]

[9] Some cantons require many signatures, offer only a short time period in which to collect them, do not have a mandatory (only an optional) legislative referendum, and a high financial threshold. Such cantons thus exhibit high legal requirements and score low (i.e. close to one) on the index of direct democracy. Cantons with low legal requirements score high (i.e. close to six). Coding for thresholds and corresponding index points is described in detail by Stutzer and Frey (2000).

Table 4.1: Overview of direct democracy scores as well as cantonal means of trust

| Canton | Number of Obs. | Direct democracy: Availability of rights 2003 | Direct democracy: Actual use 2002–2006 | Trust toward political authorities |
|---|---|---|---|---|
| Geneva | 595 | 1.75 | 3.8 | 5.57 |
| Ticino | 519 | 2.25 | 2 | 6.45 |
| Vaud | 156 | 2.42 | 2.6 | 6.43 |
| Neuchâtel | 107 | 2.73 | 1.2 | 5.56 |
| Fribourg | 104 | 2.79 | 0.6 | 6.57 |
| Bern | 299 | 3.02 | 1.4 | 6.58 |
| Zurich | 648 | 3.5 | 3.2 | 6.56 |
| St. Gallen | 123 | 3.52 | 1.6 | 6.83 |
| Valais | 90 | 3.58 | 0.2 | 6.69 |
| Jura | 118 | 3.71 | 0 | 5.8 |
| Thurgovia | 110 | 4.33 | 0.4 | 6.76 |
| Basel-Town | 107 | 4.4 | 4 | 6.63 |
| Lucerne | 102 | 4.42 | 2.2 | 6.85 |
| Zug | 102 | 4.48 | 1.4 | 7.29 |
| Obwalden | 110 | 4.63 | 0 | 6.97 |
| Grisons | 98 | 4.83 | 0.6 | 6.68 |
| Appenzell O.R. | 116 | 4.92 | 0 | 7.03 |
| Schwyz | 123 | 4.93 | 0.8 | 6.8 |
| Schaffhausen | 117 | 5.02 | 0.8 | 7.06 |
| Uri | 102 | 5.13 | 0.6 | 7.29 |
| Solothurn | 89 | 5.25 | 2.6 | 6.27 |
| Argovia | 145 | 5.44 | 1.4 | 6.29 |
| Appenzell I.R. | 109 | 5.44 | 0 | 7.84 |
| Basel-Country | 97 | 5.48 | 3.2 | 7.07 |
| Glarus | 106 | 5.5 | 0 | 6.9 |
| *Mean* | 176 | 4.14 | 1.38 | 6.67 |
| *Std. dev.* | 161 | 1.13 | 1.26 | 0.52 |

The second conception, the *actual use of direct democratic instruments*, is measured by averaging the number of all cantonal initiatives and optional referendums per year from 2002 to 2006 (Année politique Suisse). The number of mandatory referendums is deliberately excluded from the measure as it does not fit to our theoretical argument: An institutionally required and automatically triggered referendum can hardly be perceived by citizens as necessity to sanction political authorities. We test both operationalizations of direct democracy separately to ensure a comprehensive account of direct democracy

and to strengthen our empirical investigation. Table 4.1 provides an overview of the direct democracy scores as well as aggregate measures of political trust in 25 cantons.[10] Moreover, our analysis accounts for several alternative factors that are commonly referred to in the literature (e.g. Rahn and Rudolph 2005) by including them as control variables. On the individual level several factors should influence political trust (cf. Bühlmann 2007). Presumably, political trust varies systematically with gender, age and level of education. Women are supposed to be more critical toward political authorities as they are less well represented. Elderly citizens have more experience with political authorities and thus should display a higher level of trust (Richardson, Houston and Hadjiharalambous 2001). Besides, it is assumed that education enables citizens to better understand and to take part in politics and thereby gather experience, which in turn facilitates the development of political trust and diffuse support (Milbrath 1965; Richardson, Houston and Hadjiharalambous 2001; Scheidegger and Staerklé 2011). Moreover, we assume that Catholics display higher levels of trust. In contrast to Protestantism that emphasizes individualism and self-reliance, Catholicism is more at ease with the reliance on authorities (Bühlmann 2007; Elazar 1966). Furthermore, Scheidegger and Staerklé (2011) show that a feeling of being materially at risk is connected to trust. Following a similar logic we include unemployment status as a variable in our models. Finally, the perception whether the state of economy has worsened is included as a further individual-level control. Therefore, we model age, sex, level of education, catholic denomination, unemployment status and perception of the economic development as individual control variables.

Just as we include these variables on the individual level, we also need to account for systematic differences between contextual units. Obviously, cantons in our sample display certain idiosyncrasies that may be related to both direct democratic institutions and political trust. In order to avoid systematically biased or spurious relationships we add two further contextual controls to our analysis. To some extent these should be objective performance measures of political authorities. National income might be regarded as a broad indicator of performance, which has shown to be a determinant of political trust levels in cross-country studies (Mishler and Rose 2001). In addition we include a measure of the financial state of cantons that takes into account several indicators of how well a canton manages its financial state. As argued above, more extensive direct democratic settings should be paralleled by less mismanagement and less public debt (Citrin 1996;

[10] The Selects survey did not collect data for the canton Nidwalden because the number of candidates did not exceed the number of seats, i.e. the only candidate who presented himself was automatically elected in this canton (Lutz 2008, 52).

Kirchgaessner, Feld and Savioz 1999). Individual data used in the analysis comes from the Swiss Electoral Studies which is part of the Comparative Study of Electoral Systems (CSES) project. The 2007 survey used in our analysis included 4,392 telephone interviews in 25 cantons (except the canton Nidwalden).[11] Contextual data was taken from official statistics.

From a comparative perspective it seems advantageous to use the context of Swiss subnational entities to investigate our research question. Compared to country-level analyses, Swiss cantons exhibit a substantial degree of similarity with respect to several institutional and societal aspects. In other words, the cantons have many characteristics in common that can be treated as constants, while they differ regarding the configuration of the here investigated concepts. Finally, the individuals investigated here are nested within institutional contexts that are thought to exert an influence on them. To estimate these contextual effects we apply varying-intercept models (Gelman and Hill 2007; Steenbergen and Jones 2002).

## 4.5 Empirical results

We estimate several models to investigate the effect of direct democracy on political trust. Preliminary analyses reveal that trust in cantonal authorities systematically varies between cantons (e.g. 0-Model context variance is 0.23). Thus, there seems to be contextual differences that affect political trust making it methodologically appropriate to model contextual effects such as that of direct democracy.

The empirical results of six models are displayed in Table 4.2. Model 1 includes only individual control variables. In Model 2 and 3 the variables of direct democratic rights and actual use of direct democratic instruments are added. Model 4 and 5 test the robustness of the effect by adding contextual controls. In Model 6, finally, both direct democracy and all control variables are included, thus representing the strongest test of the theoretical argument.

The main results can be described as follows: First of all, most of the individual control variables in Model 1 are significant and affect political trust in the expected direction. Namely, age, education and catholic denomination have a positive effect and a negative economic evaluation is associated with lower political trust. This suggests that the estimated model is in principle useful for the explanation of political trust. More impor-

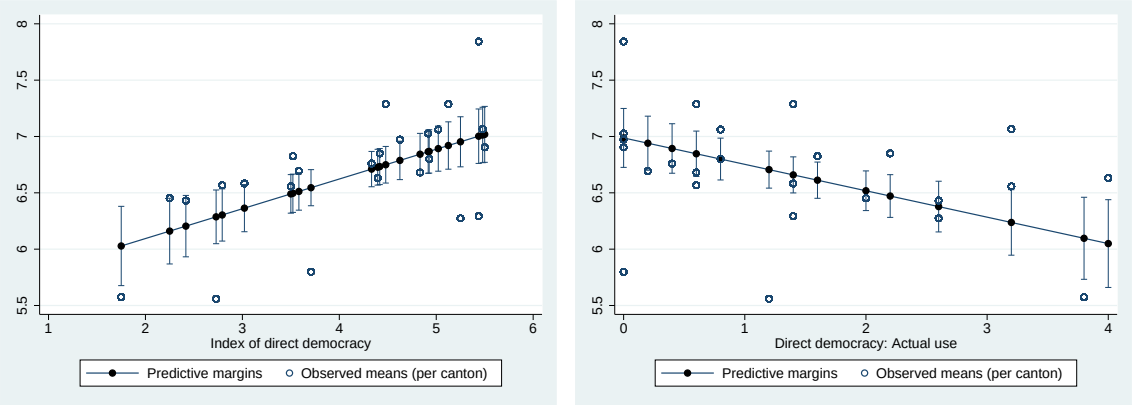
[11] 2,005 of these interviews were from a national representative sample and a further 2,387 interviews were conducted in order to ensure at least 100 respondents in small cantons. Additionally, in three cantons (Ticino, Geneva, and Zurich), the number of interviews was increased to a total of 600 per canton.

Table 4.2: Random-intercept models of direct democracy and political trust

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Constant | 6.008*** | 4.883*** | 6.209*** | 4.675*** | 4.509*** | 4.478*** |
| | (0.186) | (0.328) | (0.209) | (0.621) | (0.663) | (0.603) |
| Age | 0.007*** | 0.007*** | 0.007*** | 0.007*** | 0.007*** | 0.007*** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Sex | 0.054 | 0.056 | 0.054 | 0.056 | 0.054 | 0.055 |
| | (0.061) | (0.061) | (0.061) | (0.061) | (0.061) | (0.061) |
| Education | 0.027*** | 0.028*** | 0.028*** | 0.028*** | 0.028*** | 0.028*** |
| | (0.009) | (0.009) | (0.009) | (0.009) | (0.009) | (0.009) |
| Catholic (Dummy) | 0.198*** | 0.199*** | 0.190*** | 0.202*** | 0.202*** | 0.200*** |
| | (0.067) | (0.066) | (0.067) | (0.067) | (0.067) | (0.067) |
| Economy worse | −0.461*** | −0.450*** | −0.462*** | −0.449*** | −0.456*** | −0.450*** |
| (Dummy) | (0.103) | (0.103) | (0.103) | (0.103) | (0.103) | (0.103) |
| Unemployed | −0.355 | −0.35 | −0.355 | −0.35 | −0.356 | −0.351 |
| (Dummy) | | | | | | |
| | (0.263) | (0.263) | (0.263) | (0.263) | (0.263) | (0.263) |
| Direct democracy: | | 0.272*** | | 0.264*** | | 0.189** |
| Availability of rights | | (0.067) | | (0.07) | | (0.08) |
| Direct democracy: | | | −0.146** | | −0.234*** | −0.131* |
| Actual use | | | (0.074) | | (0.072) | (0.079) |
| Financial state | | | | 0.012 | 0.033 | 0.013 |
| | | | | (0.086) | (0.089) | (0.081) |
| National income | | | | 0.403 | 3.731** | 1.953 |
| | | | | (1.394) | (1.572) | (1.618) |
| Observations | 4,225 | 4,225 | 4,225 | 4,225 | 4,225 | 4,225 |
| Number of groups | 25 | 25 | 25 | 25 | 25 | 25 |
| −2× log likelihood | 17,659 | 17,647 | 17,656 | 17,646 | 17,649 | 17,644 |
| Context variance | 0.209 | 0.113 | 0.175 | 0.112 | 0.126 | 0.098 |

*Note:* Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Figure 4.1: Predictive margins of political trust




(a) Based on Model 4

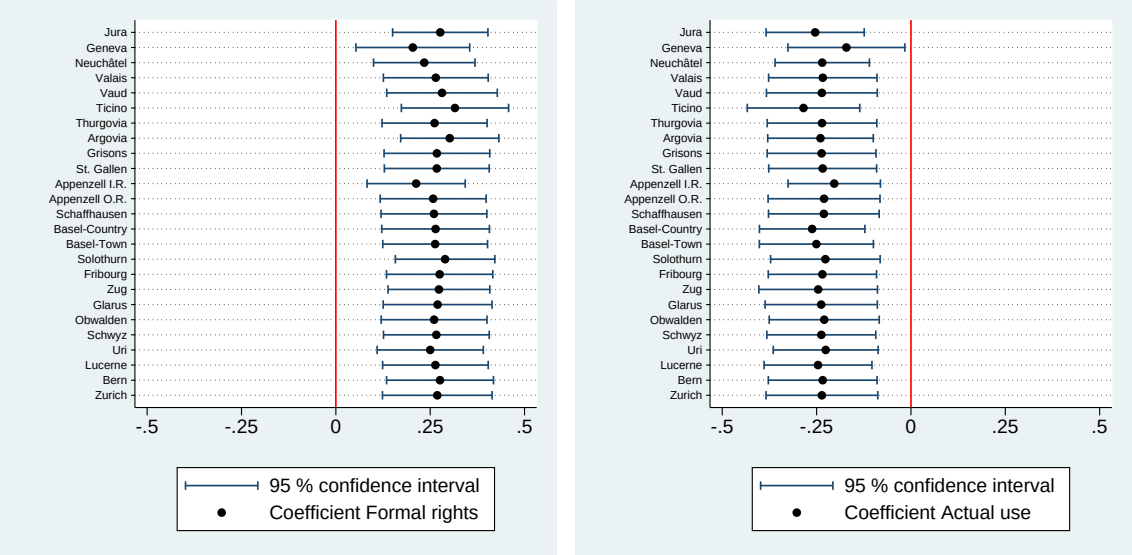
(b) Based on Model 5

tantly, however, Model 2 and 3 show the effect of direct democracy: While the availability of direct democratic rights measured by Fischer's (2009) index of institutional barriers have a positive effect on political trust, the number of popular votes on initiatives and optional referendums has a negative effect. Both effects are statistically significant and are able to reduce context variance to 11.3 and 17.5 respectively. Moreover, the direct democracy variables remain significant in Models 4 and 5 even after controlling for contextual characteristics of cantons. They also pass the last test in Model 6 with both direct democracy variables included. These results are in line with both our hypotheses about the diverging effects of direct democracy: More extensive direct democratic rights lead to higher political trust. More extensive use of these rights, however, leads to lower political trust.[12]

To evaluate the substantive size of the effect, we plot predictive margins of political trust for all levels of our direct democracy variables for Model 4 and 5. Figure 4.1 shows a change in political trust of roughly one point (on the 11-point scale). On the left side, political trust increases from 6 to 7 going from the cantons with the least to the cantons with the highest availability of direct democratic rights. On the right side, we observe the corresponding decrease from the least to the most direct democratic canton in terms of

[12] Sometimes urbanization and size of canton are found to affect the number of popular votes and are also possibly connected to political trust (Trechsel 2000). In analyses not documented here, we, thus, added further control variables to our models: a dummy indicating whether an individual lives in a rural or urban area, the size of the canton in $km^2$ and the number of inhabitants. These variables are, however, not significant in our models, do not change the model estimates substantially, and are therefore excluded. Results are available from the authors upon request. This finding is also in line with Eder (2010, 144) and Vatter (2002, 328), who find no significant effect of urbanization on the number of initiatives and referendums when controlling for other factors.

Figure 4.3: Effect of direct democracy on political trust excluding single cantons




(a) Based on Model 4

(b) Based on Model 5

actual use. At first, the difference of one point might not seem great but considering how many (individual as well as contextual) factors are crucial for the development of political trust in general, the effect size of direct democracy is substantial and quite remarkable. Furthermore, observed means of cantonal trust (as indicated by circles) can be found in most (about 19) cases within the confidence intervals of predictive margins. Only means in about six cantons with more extreme values for direct democracy and fewer respondents differ from predicted levels of trust. The relationship remains nonetheless the same: A fitted OLS regression line (not shown in the plot) between direct democracy and aggregated means of political trust closely resembles the predictive line in the plot.

## 4.6 Robustness and further analyses

The empirical results certainly require further testing. Three issues in particular arise. A first issue concerns outliers. As we are dealing with a limited number of level-two units (here, cantons), the danger exists that results are dominated by a few observations, thereby casting doubt on the reliability of estimates as well as conclusions. Therefore, we re-estimate our Models 4 and 5 (Table 4.2) several times, each time excluding one canton (and its respondents). Although this kind of manual jackknifing represents a strict test for influential cases (excluding in some cases several hundred observations),

the coefficients of the direct democracy variables remain statistically significant in all 25 separate models. Figure 4.3 illustrates the direct democracy coefficients in the 25 separate models excluding single cantons. Based on these results, we can conclude that the significant relationship is not due to single outlying cases.

A second issue concerns causality. It has long been argued that institutions are endogenous to collective action by individuals (Foweraker and Landman 1997). With regard to the formal institutional conception, though, direct democratic rights represent an inherent feature of the Swiss democratic system, which has been stable for decades (Geser 1999). Direct democratic rights that have been formally present during the socialization processes of several generations leave their imprint on attitudes rather than the other way round. Therefore, in our view, it seems only plausible to argue that the long-term contextual condition of the formal institutional conception of direct democratic rights causally affects volatile individual attitudes, and not vice versa (Davis 1985). However, with regard to the actual use of direct democratic instruments this argument is less applicable. On the one hand, it could well be that low levels of political trust are the cause of more frequent use of direct democratic instruments. On the other hand, one may argue that direct legislation in Switzerland is primarily initiated by unions, parties, local action groups or other organizations and not by the broad citizenry. In other words, the vast majority of people does not initiate direct democratic processes actively, but rather experience processes passively after their initiation.

The models we estimated up to this point do not allow for solving this "causal" puzzle empirically; rather, they merely reveal a negative association between the use of direct democracy and political trust. One approach to estimate causal effects with cross-sectional data is to resort to instrumental variables. In general, it is difficult to find proper instruments that satisfy the necessary assumptions (cf. Bound, Jaeger and Baker 1995; Sovey and Green 2011). An instrument should be related to the independent variable of interest, and second, should not be related to the dependent variable other than through the independent variable (Legewie 2012, 137).

While reasons to initiate direct democratic processes are manifold, whether those result in actual popular votes hinges on the capability to collect enough signatures. And meeting this requirement is obviously easier where many people are around to sign petitions. As stated by Verbrugge and Taylor (1980, 138): "[h]igh density provides more opportunities for informal contact and assistance because people are more accessible." Hence, we argue that population density influences the frequency of popular votes and instrument the actual use of direct democracy with the population density of a canton. Regarding the first assumption, population density is indeed highly ($r = 0.63$) and significantly

Table 4.3: Instrumental variable regression: Actual use instrumented with population density

| | (1) | (2) |
|---|---|---|
| Constant | 4.612*** | 6.369*** |
| | (0.590) | (0.593) |
| Age | 0.007*** | 0.007*** |
| | (0.002) | (0.002) |
| Sex | 0.036 | 0.006 |
| | (0.065) | (0.067) |
| Education | 0.025*** | 0.021*** |
| | (0.009) | (0.009) |
| Catholic (Dummy) | 0.251*** | 0.219*** |
| | (0.073) | (0.080) |
| Economy worse (Dummy) | –0.522*** | –0.587*** |
| | (0.171) | (0.165) |
| Unemployed (Dummy) | –0.421** | –0.443*** |
| | (0.170) | (0.162) |
| Urban or rural area (Dummy) | | –0.029 |
| | | (0.211) |
| Direct democracy: Actual Use | –0.306*** | –0.310* |
| | (0.092) | (0.182) |
| Financial state | –0.061 | 0.027 |
| | (0.060) | (0.069) |
| National income | 4.914*** | 0.000 |
| | (1.401) | (1.732) |
| Size of canton | | –0.000 |
| | | (0.000) |
| Inhabitants | | –0.000 |
| | | (0.000) |
| Observations | 4,225 | 4,225 |
| $R^2$ | 0.050 | 0.039 |

*Note:* Robust standard errors (clustered by Canton) in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 4.4: Random-intercept models controlling for language region

| | (1) | (2) | (3) |
|---|---|---|---|
| *Models control for individual and contextual variables of Model 4 and 5 in Table 2* | | | |
| Direct democracy: | 0.126 | | 0.050 |
| Availability of rights | (0.096) | | (0.100) |
| Direct democracy: | | −0.145** | −0.130** |
| Actual use | | (0.066) | (0.073) |
| German language canton (Dummy) | 0.522* | 0.611*** | 0.526** |
| | (0.268) | (0.189) | (0.255) |
| Constant | 5.553*** | 5.513*** | 5.366*** |
| | (0.733) | (0.637) | (0.702) |
| Observations | 4,225 | 4,225 | 4,225 |
| Number of groups | 25 | 25 | 25 |
| −2× log likelihood | 17,643 | 17,640 | 17,640 |
| Context variance | 0.093 | 0.080 | 0.079 |

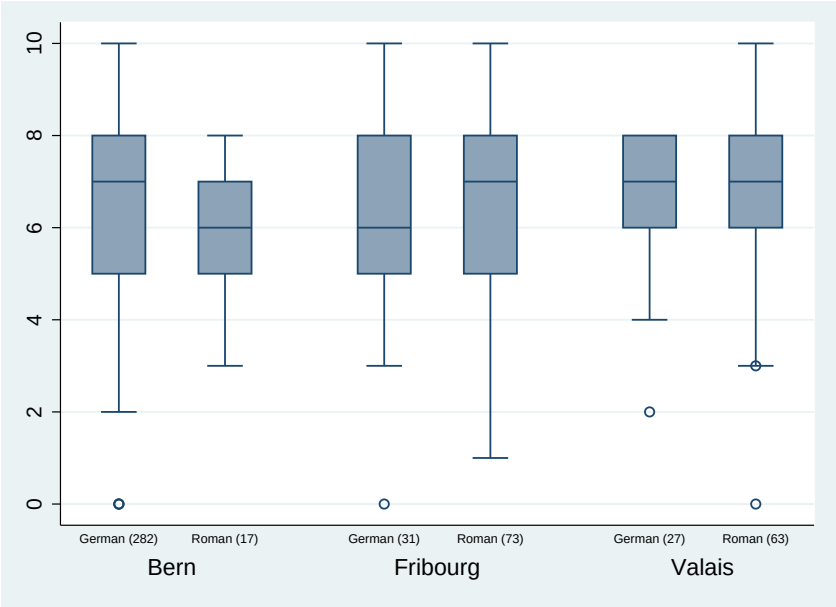
*Note:* Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

($p < 0.01$) correlated with the use of direct democratic instruments. In what regards the second assumption we assume that population density affects political trust solely via the use of direct democracy conditional on different control variables. Accordingly, we estimate two-stage least squares regression models with robust standard errors clustered by cantons and accounting for all control variables mentioned before. As can be seen from both models in Table 4.3, the now instrumented effect of direct democratic use is still negative, of substantive size and statistically significant. Even when controlling for additional variables such as urbanization and size of canton, which could potentially mediate an indirect effect of population density on political trust, the estimates do not change.[13]

Bearing the limitations of our instrument and potential selection bias in mind, we carefully interpret this result as indication that there really is an effect running from the use of direct democracy to political trust.

[13] For instance, population density could have other indirect effects on political trust via other variables such as economic development, etc. However, we are fairly confident that we control these indirect effects for the most part. Hence, that part of the instrument should be left over that really has no direct or indirect relationship with trust.

Figure 4.5: Political trust of different language groups within bilingual cantons. Language group depending on "Language of the interview" in Selects 2007 data. Number of observations in brackets.




Thirdly, often in cross-cantonal comparative research on Switzerland, the significance of language regions is raised. Differences between German-speaking and Roman parts have shown to be important factors in Swiss politics and relevant for many societal aspects (Freitag and Stadelmann-Steffen 2010, 477). In fact, language regions roughly coincide with the prevalence of direct democratic rights as can be seen in Table 4.1: While direct democratic rights are more extensive in the German-speaking part, cantons in the Roman part are more oriented toward a representative model of democracy (Kriesi 1998; Ladner 2002). We, therefore, test our model again accounting for language regions by including a dummy variable. Table 4.4 shows that trust levels indeed differ significantly between language regions. The negative effect of actual use of direct democracy on political trust does not change under this additional control.[14]

But the effect of formal direct democratic rights is not significant anymore when controlling for language regions. This is hardly surprising since the extent of direct democratic rights and language regions run along the same boarder and are highly correlated. In other words, language regions might work as proxy for formal rights of direct democracy (and vice versa).

[14] We also re-estimate the instrumental regression in Table 4.3 with a dummy variable for language regions as in Table 4.4. The results (not documented here) remain the same. While decreasing

How should we interpret this finding? On the one hand one might argue that the cultural traditions of the language regions are crucial for the development of trust (Mishler and Rose 2001; cf. Footnote 3). In that respect, direct democratic rights are shaped within the cultural tradition that embodies a favorable, trustworthy view of political authorities. It remains, however, unclear how political trust should be affected by the cultural context if not precisely by institutions such as direct democracy, which are specific to the respective context. In an attempt to disentangle the effects of language regions and formal direct democratic rights, we further test whether political trust differs significantly between language groups within the three bilingual cantons Bern, Fribourg, and Valais. From the box plots in Figure 4.5 it is clear that this is not the case. Evidently, there is no significant difference of political trust between language groups in the same direct democratic context. Although this result is obviously not sufficient to dismiss cultural explanations of political trust in the Swiss case, it supports the role of institutions such as direct democracy as factors (among others) influencing political trust.

## 4.7 Conclusion

Little systematic research has explicitly addressed the question of how direct democracy and political trust are related to each other. However, if political trust is to be considered a major asset for societies and if its decline is as urgent as claimed, it becomes absolutely necessary to investigate the impact of institutions that might eventually increase this resource. Although contextual factors receive more and more attention in political trust research (Zmerli and Hooghe 2011), only very little empirical evidence exists regarding the question whether direct democracy represents such an arrangement and fulfills the promise of participatory democrats or in contrast initiates distrust (Dyck 2009). And so far no study has examined this relationship in Switzerland. In this study we make a first step to fill this gap.

In contrast to previous studies, we emphasize the necessity of a clear theoretical distinction between two conceptions of direct democracy, namely the formal strength of direct democratic rights and the actual use of those rights. Taking this distinction into account we develop arguments that suggest positive effects of extensive direct democratic rights and negative effects of actual use of direct democratic instruments on political trust. Our empirical analysis of the Swiss cantons seems to support this reasoning: Holding alternative variables constant political trust is higher in cantons with extensive direct

in size (to −0.133), the coefficient of actual use of direct democracy is negative and significantly different from zero.

democratic rights and lower in cantons with frequent use of these rights. This may serve as explanation for the ambiguity of previous results (Citrin 1996; Dyck 2009; Hug 2005). These results, however, have to be taken with a pinch of salt. First, we need to acknowledge the role of cultural traditions in the Swiss language regions. While the negative effect of use of direct democratic instruments is not affected, the positive effect of the availability of direct democratic rights vanishes when controlling for language regions. Since extensiveness of direct democratic rights is closely related to the language regions in Switzerland, we cannot ultimately judge empirically whether cultural or institutional influences prevail in the development of political trust. From a neo-institutional perspective the latter seems obviously preferable. This institutional perspective does not deny the importance of early-life cultural influences (Mishler and Rose 2001, 31). If in fact political authorities have performed well and consistently over long periods of time (e.g. due to extensive direct democratic rights) cultural socialization as well as evaluation of this performance assumably result in similar levels of political trust (Mishler and Rose 2001, 32). Nevertheless, more studies are needed that scrutinize the relationship in different institutional and cultural settings.

Second, theoretically it seems plausible that the relationship between the actual use of direct democracy and political trust may run in both ways. In this study we made a first step trying to get a better estimate resorting to an instrumental variable approach. However, we strongly recommend that future studies further scrutinize this potentially reciprocal relationship. One possible venue could be the analysis of panel data, given that there are measures for both variables at different points in time. Another approach would be more qualitatively oriented analyses of the causal mechanism.

Finally, our study represents the most recent attempt so far to analyze the relationship of direct democracy and political trust and provides evidence from an exemplary empirical case, namely Switzerland. Thereby, our contribution of the effects of direct democracy on political trust contributes to the on-going dialogue about the introduction of direct democratic procedures around the world (Butler and Ranney 1994; Scarrow 2001). With all limitations in mind, we carefully conclude from our results that from a normative point of view extending direct democratic rights is a desirable step. Lowering institutional barriers for direct democratic instruments provides citizens with participatory means to keep their authorities on a short leash and ultimately seems to raise political trust.

# 5 Conclusion: Insights and propositions for the future of trust research

What are the fundamental insights of the three studies presented in the preceding chapters? *Chapter 2* (Freitag and Bauer 2013) illustrates that self-reported trust judgments are much more complex and differentiated than was previously held in the relevant empirical literature. Individuals do differentiate between different trustees and do not simply divide trustees into persons they know and persons they do not know. In other words, it is a mistake to reduce various trust indicators that differentiate between trustees such as neighbors, friends, strangers, foreigners, to just two latent dimensions. Moreover, we investigate the measurement equivalence of three latent trust subconcepts, based on six different self-report measures. Across Swiss respondents belonging to different language regions, there seem to be no or only negligible culturally conditioned variations in the understanding and interpretation of the six trust scales. This is encouraging, given that Chapter 3 and Chapter 4 rely on similar self-report measures and data sets from Switzerland that include respondents from all three language regions.

*Chapter 3* (Bauer 2014*b*) focuses on *generalized trust*, a trust subconcept, measured with the most-people question. Expectations measured with this question seem to be unaffected by direct victimization experiences. Hence, Chapter 3 furnishes empirical evidence supporting the notion that generalized trust is immune to later-life experiences. However, even if generalized trust is unaffected, more specific expectations could be affected. As I outline at the end of Chapter 3 we can not exclude the possibility that negative experiences do change victims' expectations regarding specific trustees that share characteristics with the offender. These expectations might matter when it comes to (non-)cooperation with persons or groups sharing offender characteristics (e.g. young people). Accordingly, we need more differentiated survey questions to capture them empirically.

*Chapter 4* (Bauer and Fatke 2014) focuses on another trust subconcept, *political trust* measured with a standard question. The chapter illustrates two major points: First, it is necessary to make a clear theoretical and empirical distinction between two conceptions of direct democracy, namely the formal strength of direct democratic rights and

the actual use of those rights. Second, it provides empirical evidence that political trust is higher in cantons with extensive direct democratic rights and lower in cantons with frequent use of these rights, which serves as an explanation for the ambiguity of previous research findings. Although there is some evidence, we are very cautious in giving these findings a causal interpretation. Yet, we suppose that extending direct democratic instruments should have an overall positive effect on the trust relationship between citizens' and political authorities in developed countries.

Beyond these conclusions, I would like to make some more general remarks that, in part, reflect recommendations made in the preceding chapters. *First*, as already argued in the introduction, a *common understanding of a concept* among researchers in a certain area is a prerequisite for accumulating knowledge. Without such an agreement, research will merely produce endless discussions on conceptualizations rather than new empirical insights. The sheer number of trust definitions (cf. Table A1) reflects that such a development has taken place within trust research. At the same time, any good theory that relates concepts to other concepts needs to stand on clear definitions of these concepts. The history of trust research has seen such attempts (e.g. Rotter 1967 in Table A1). However, nowadays empirical research – both in the self-report and the behavioral tradition – is, with very few exceptions, not based on very elaborate conceptualizations. Future research should adopt a common understanding, a common conception of trust. Section 1.2 (cf. Bauer 2014*a*) provides such a general conception of trust that easily comprises the various subconcepts coined by different scholars. Eventually, such a general conception could prove to be a more solid foundation for future research on trust and trustworthiness. The one presented is more formal than many earlier definitions, can be applied to manifold real life cases and realizes the long neglected but necessary differentiation between trust and trustworthiness (Hardin 2002).

*Second*, this leads us to the issue of *concept-measurement inconsistency*. Ideally, some decades ago trust research would have departed from a clear definition that would have led to more precise measures. But as the review of trust measurement in Section 1.3 has shown, the opposite is true and various measures were developed. Sometimes scholars departed from a rather clear definition (e.g. Rotter 1967), but more commonly measurement has driven the research agenda. For instance, most research on the concept of generalized trust is based on a modified question from 1942.[1] Levi and Stoker (2000) observe the same problem for political trust. Likewise, authors did not define trust very

[1] This is not surprising. There are strong incentives to use measures that have been used previously by other researchers. First, researchers want to compare their data to older data sets. Second, researchers take the repeated use of certain measures as a sign of their quality and their acceptance among other researchers.

precisely when starting to investigate the concept in behavioral research (e.g. Deutsch 1960), even when experiments were designed specifically for that purpose (e.g. Berg, Dickhaut and McCabe 1995). Hence, various trust measures are used and normally they are not based on any formal systematic definition of trust. This has led to a vast body of atomized non-comparable empirical trust research. Right now we can only summarize past empirical evidence along the lines of specific measures. For instance, we can analyze all studies that are based on a specific version of the most-people question or analyze all studies that are based on the exact same form of the classic trust game that was described in Section 1.3. Trust research will benefit strongly, if future research departs from a common, more precise definition which then leads to more precise measures reflecting this definition. This would immensely facilitate the comparison of empirical research across different disciplines.

Third, a related issue is the *quality of measurement*. In recent years, both self-report measures as well as behavioral measures have been challenged. Self-report measurement is contested with regard to potential problems of interpersonal incomparability and concept-measurement inconsistency (e.g. Hardin 2002; Freitag and Bauer 2013; Reeskens and Hooghe 2008). Importantly, the self-report measures, on which almost all of the empirical research is based today, were developed before the field of survey methodology could produce the insights that we possess today. Behavioral measurement is also criticized. For instance, it is argued that the classical trust game might confound trusting expectations with other motivations for behavior (Ermisch et al. 2009). Future research should focus on developing, testing and contrasting different measures of trust. If we take the challenge of accumulating knowledge seriously, we have to break through the inertia in current measurement and develop new measures. Trust research would profit from more specific trust questions that would also lead to more specific theories. I am convinced that it will be in this area – trust measurement – that we are likely to see the biggest and most important developments in the near future. More specific questions that specify a trustee B and an expected behavior X will produce more precise and reliable answers than the questions we are using right now (Bauer 2014*a*). In future surveys we might also let respondents locate themselves on probability scales as suggested in Bauer (2014*a*), at least in respondent pools where this is a feasible approach. This would be the preferred way of measurement when we closely follow the general definition of trust outlined in Section 1.2. A first application of this way of measurement can be found in Freitag and Bauer (2015), where the authors rely on *respondents' assessment of the probability that different categories of trustees will return a purse that they lost* to measure trust. Trust is relevant because of its link to cooperation. Therefore, we

also need to make sure that our self-report measures are related to trusting behavior, i.e. to behavioral measures of trust. This will require working both on the frontiers of self-report as well as behavioral measurement.

*Fourth*, conceptualization and measurement are but one side of the coin, *causal inference* is the other. In the wake of what Imai (2011, 1) terms the "revolutions of identification and potential outcomes", scholars are increasingly concerned with selection bias, reinterpret classical statistical methods and focus on design-based solutions to the endogeneity problem. This dissertation follows that trend. Chapter 3 and Chapter 4 link the concept of trust to other concepts and represent attempts to generate more valid estimates of the "causal effects" of the respective explanatory variables. In Chapter 3 (Bauer 2014*b*), I depart from an ideal thought experiment as benchmark and subsequently employ a change score model in combination with a matching approach. In Chapter 4 (Bauer and Fatke 2014), we extensively discuss the problem of causality and employ an instrumental variable strategy. Despite their weaknesses, these strategies represent a step forward in comparison to many earlier investigations in the field of trust research. Future trust research should embrace these developments. Trust researchers should adopt and contribute to the various methodological innovations that are currently happening in the wake of the above-named revolutions. Certain designs represent massive improvements over earlier methodological approaches to studying causal relationships and we have to make increased use of them. Moreover, it is necessary that we replicate previous findings, applying the more sophisticated methods and the evolved knowledge that we, as social scientists, have acquired in recent years.

If we follow these propositions the knowledge generated within our field will expand substantially, and we will do justice to one of the most significant, if not the most significant concept in the social sciences: *Trust*.

## A.1 Appendix for Chapter 1: The introduction

Table A1 serves to give a quick overview of the main differences between the conception of trust presented in Section 1.2 and earlier conceptions. As mentioned, definitions of trust are numerous and it is impossible to discuss all definitions. For this reason definitions were chosen according to their influence (Google Scholar citation score), their originality and according to whether they both defined trust and trustworthiness together such as Ben-Ner and Halldorsson (2010) and Colquitt et al. (2007). Many of them contain important elements on which I draw in Section 1.2. However, they still display diverse fundamental differences. The differences most commonly found are that they do not conceive trust as a subjective probability, that they do define trust as "trusting behavior" rather than as expectation, that they do mix the concept of trust with considerations on which trust judgments may be based and, finally, that they do restrict the elements ABX in some way.

Table A1: Earlier definitions of trust and trustworthiness and main difference to the here presented conception

| **Author(s)** | **Definition** | **Difference** |
|---|---|---|
| Baier 1986 | Baier (1986, 235) asserts that "[t]rust [...] is accepted vulnerability to another's possible but not expected ill will (or lack of good will) toward one". "Trust, I have claimed, is reliance on others' competence and willingness to look after, rather than harm, things one cares about which are entrusted to their care." Baier (1986, 259) | Trust ≠ subjective probability; Trust = trusting behavior (entrust things to others' care) |
| Barber 1983 | Barber (1983, 8) outlines that trust describes various types of expectations that social actors have of one another in social relationships and social systems and differentiates between a general one and two specific subtypes whose fulfillment/or not has various functional/dysfunctional consequences for the relationships and social systems in which actors are engaged. The most general is trust as "expectation of the persistence and fulfillment of the natural and the moral social orders" followed by trust as the "expectation of technically competent role performance from those involved with us in social relationships and systems" and finally trust as the "expectation that partners in interaction will carry out their fiduciary obligations and responsibilities, that is, their duties in certain situations to place others' interests before their own" (Barber 1983, 9). | Trust ≠ subjective probability; Barber's three types of expectations can be fit with our formal statement |
| Ben-Ner and Halldorsson 2010 | "Trusting is the inclination of a person "A" to believe that other persons "B" who are involved with a certain action will cooperate for A's benefit and will not take advantage of A if an opportunity to do so arises. A - the trustor - must therefore be willing to show his or her vulnerability by taking the risk that B - the trustee - may act in a way that does not benefit A. The concept of trusting requires that the action hold the potential of a loss by the trustor; it does not require but is compatible with a potential gain and/or loss by the trustee. Trusting can vary from complete distrusting to complete or 'blind' trusting." Ben-Ner and Halldorsson (2010, 65); "Trustworthiness is the willingness of a person B to act favorably towards a person A, when A has placed an implicit or explicit demand or expectation for action on B. The implicit demand may entail a situation in which a child is drowning and B is expected to do something to save the child, that B drive with care and stop at pedestrian crossing when A is on the road, or that B reward an investment made by A, like in the trust game." (Ben-Ner and Halldorsson 2010, 65-66) | Trust ≠ subjective probability; Trust = trusting behavior; Trustworthiness = willingness rather than objective probability behavior |

| | | |
|---|---|---|
| Colquitt et al. 2007 | "The trust literature distinguishes trustworthiness (the ability, benevolence, and integrity of a trustee) and trust propensity (a dispositional willingness to rely on others) from trust (the intention to accept vulnerability to a trustee based on positive expectations of his or her actions)." (Colquitt et al. 2007, 909) | Trust ≠ subjective probability; Trust = intention based on expectation; Trustworthiness ≠ objective probability of behavior; Trustworthiness = attributes of trustworthiness |
| Dasgupta 1988 | "'trust' in the sense of correct expectations about the actions of other people that have a bearing on one's own choice of action when that action must be chosen before one can monitor the actions of those others." (Dasgupta 1988, 51); "In defining trust I have spoken of one's expectations regarding others' choice of actions that have a bearing on one's own choice of action." (Dasgupta 1988, 53) | Trust ≠ subjective probability; Trust = "correct" expectations; B = people; X = people's actions |
| Deutsch 1960 | Deutsch (1960, 124) describes the essential features of a situation in which an individual is confronted with "a choice to trust or not in the behavior of another person" namely that the "individual is confronted with an ambiguous path, a path that can lead either to an event perceived to be beneficial [...] or to an event perceived to be harmful [...] If he chooses to take an ambiguous path with such properties, I shall say that he makes a trusting choice; if he chooses not to take the path, he makes a distrustful choice." Deutsch (1960, 124) suggests in which situation one is likely to make this choice, namely "one trusts when one has much to lose or little to gain" and "one needs considerable confidence in a positive outcome to trust". | Trust ≠ subjective probability; Trust = specific decision ≠ expectation |
| Fukuyama 1995 | Fukuyama (1995, 26) defines trust as "the expectation that arises within a community of regular, honest, and cooperative behavior, based on commonly shared norms, on the part of other members of the community" | Trust ≠ subjective probability; Trust = "positive" expectation |
| Gambetta 1988 | "trust (or, symmetrically, distrust) is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action (or independently of his capacity ever to be able to monitor it) and in a context in which it affects his own action (see Dasgupta and Luhmann in particular, this volume)." (Gambetta 1988, 217) "Firstly, it tells us that trust is better seen as a threshold point, located on a probabilistic distribution of more general expectations, which can take a number of values suspended between complete distrust (0) and complete trust (1), and which is centered around a mid-point (0.50) of uncertainty" (Gambetta 1988, 218) "In conclusion, trusting a person means believing that when offered the chance, he or he is not likely to behave in a way that is damaging to us, and trust will typically be relevant when at least one party is free to disappoint the other, free enough to avoid a risky relationship, and constrained enough to consider that relationship an attractive option." (Gambetta 1988, 219) | B = (human) agents; X = actions of these agents |
| Hardin 2002 | "trust as encapsulated interest" (Hardin 2002, 1); "I trust you because I think it is in your interest to take my interests in the relevant matter seriously" (Hardin 2002, 1); "incentive compatibility, while necessary, is not sufficient for that account, which further requires that the trusted values the continuation of the relationship with the truster and has compatible interests at least in part for this reason" (Hardin 2002, 5); | Trust ≠ subjective probability; Trust = expectation based on specific considerations $C_{A_i}$; $A_i$ knows $B_j$, e.g. $B_j$ ≠ a government |
| Luhmann 1988 | "the problem of the function of trust, which is my primary interest (Luhmann 1979), and which leads to a different approach to conceptual problems" (Luhmann 1988, 95); "trust is a solution for specific problems of risk" (Luhmann 1988, 95); "Both concepts [trust and confidence] refer to expectations which may lapse into disappointments." (Luhmann 1988, 97); "Trust, on the other hand, requires a previous engagement on your part. It presupposes a situation of risk." (Luhmann 1988, 97); "If you choose one action in preference to others in spite of the possibility of being disappointed by the action of others, you define the situation as one of trust." (Luhmann 1988, 97); "Moreover, trust is only possible in a situation where the possible damage may be greater than the advantage you seek (Deutsch 1958; 1962: 302ff.)." (Luhmann 1988, 98); "Trust is only required if a bad outcome would make you regret your action" (Luhmann 1988, 98); | Trust ≠ subjective probability; Partly trust = trusting behavior (trust situation) |

| | | |
|---|---|---|
| Mayer, Davis and Schoorman 1995 | Mayer, Davis and Schoorman (1995, 712) define trust as the "willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party." | Trust ≠ subjective probability; Trust = decision/behavior resulting from expectation; Excludes monitoring/control as basis for trust |
| Offe 1999 | Offe (1999, 47) writes: "Trust is the belief concerning the action that is to be expected from others. The belief refers to probabilities that (certain categories of) others will do certain things or refrain from doing certain things, which in either case affects the well-being of the holder of the belief, as well as possibly the well-being of others or a relevant collectivity". | B = humans; X = their (non)-actions; well-being instead of preference |
| Sztompka 1999 | "Trust is a bet about the future contingent actions of others" (Sztompka 1999, 25); "trust consists of two main components: beliefs and commitment" (Sztompka 1999, 25); "Trust is more than just contemplative consideration of future possibilities. We must also face the future actively actively, by committing ourselves to action [...] trust involves commitment through action" (Sztompka 1999, 26) | Trust ≠ subjective probability; Trust = trusting behavior |
| Yamagishi and Yamagishi 1994 | "Trust can thus be defined as a bias in the processing of imperfect information about the partner's intentions. A trusting person is the one who overestimates the benignity of the partner's intentions beyond the level warranted by the prudent assessment of the available information." (Yamagishi and Yamagishi 1994, 136) | Trust ≠ subjective probability; Trust = bias in expectation rather than as expectation itself |
| **More specific trust concepts** | | |
| Hetherington and Husser 2012 | "defining political trust as the ratio of people's evaluation of government performance relative to their normative expectations of how government ought to perform" (Hetherington and Husser 2012, 313) | Trust ≠ subjective probability; B = government; Trust = expectation relative to normative expectations instead of preference |
| Mooradian, Renzl and Matzler 2006 | "propensity to trust (that is trait trust, 'dispositional trust', or 'trust'; henceforth 'propensity to trust'), which is a generalized and enduring predisposition that is neither focused on specific others nor dependent on specific contexts, and which may be related to lifetime experiences but also to temperament, and thereby to genetics and biophysiological structure." (Mooradian, Renzl and Matzler 2006, 525) | B and X do not matter for trust propensity; Trust ≠ subjective probability |
| Putnam 2000 | "Trust embedded in personal relations that are strong, frequent, and nested in wider networks is sometimes called "thick trust". On the other hand, a thinner trust in "the generalized other," like your new acquaintance from the coffee shop, also rests implicitly on some background of shared social networks and expectations of reciprocity. Thin trust is even more useful than thick trust, because it extends the radius of trust beyond the roster of people whom we can know personally"(Putnam 2000, 136) | Trust ≠ subjective probability; B = restricted; X = not specified |
| Rotter 1967 | "Interpersonal trust is defined here as an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon" (Rotter 1967, 651) | Trust ≠ subjective probability; B = humans; X = restricted to certain actions |

| | | |
|---|---|---|
| Uslaner 2002 | "Generalized trust is the perception that most people are part of your moral community" (Uslaner 2002, 26); "Generalized trust, the belief that "most people can be trusted," is largely (though not entirely) based upon moralistic trust" (Uslaner 2002, 21); "Placing faith only in our own kind is particularized trust" (Uslaner 2002, 28); "Moralistic trust is not about having faith in particular people or even groups of people. It is a general outlook on human nature and mostly does not depend upon personal experiences or upon the assumption that others are trustworthy, as strategic trust does" (Uslaner 2002, 17);<br>"Moralistic trust is not a prediction of how others will behave. Even if other people turn out not to be trustworthy, moral values require you to behave as if they could be trusted" (Uslaner 2002, 18-19); "Strategic trust reflects our expectations about how people will behave" (Uslaner 2002, 23) | Trust ≠ subjective probability; Generalized trust: B = most people, X = unspecified; Particularized trust: B = "own kind" , X = unspecified |
| Yamagishi and Yamagishi 1994 | "Whereas knowledge-based trust is limited to particular objects (people or organizations), general trust is a belief in the benevolence of human nature in general and thus is not limited to particular objects" (Yamagishi and Yamagishi 1994, 139) | Trust ≠ subjective probability; Knowledge-based trust: B = objects known to truster; General trust = general belief, B = humans, X = not specified |

## A.2 Appendix for Chapter 2: Testing for measurement equivalence in surveys

Appendix A.2.1 displays response rates across communes, language regions and the overall response rate for the survey "Volunteering in Swiss Municipalities 2010".
Appendix A.2.2 includes additional information on the analyses of the World Values Survey 2005-2008.
Appendix A.2.3 shows the modification indices for Model C, estimated for all respondents and grouped respondents according to the language regions, respectively.

### Appendix A.2.1: Response rates across communes and regions in Switzerland

Table A2: Response rates across communes and regions in Switzerland

| Commune | RR (%) | Commune | RR (%) | Language regions | RR (%) |
|---|---|---|---|---|---|
| Henggart | 36 | Mörschwil | 38 | French-Speaking region | 29 |
| Kloten | 26 | St. Margrethen | 26 | Italian-Speaking region | 33 |
| Rafz | 32 | Thal | 32 | German-Speaking region | 30 |
| Dürnten | 38 | Buchs SG | 31 | **Overall** | 30 |
| Rüti ZH | 32 | Niederhelfenschwil | 35 | | |
| Langnau a.A. | 33 | Oberbüren | 30 | | |
| Zumikon | 30 | Poschiavo | 34 | | |
| Neftenbach | 29 | Trimmis | 29 | | |
| Rickenbach ZH | 37 | Zizers | 32 | | |
| Aarberg | 34 | Obersiggenthal | 32 | | |
| Rapperswil BE | 29 | Spreitenbach | 24 | | |
| Büren a.A. | 33 | Frick | 27 | | |
| Orpund | 29 | Laufenburg | 32 | | |
| Langnau i.E. | 27 | Lenzburg | 26 | | |
| Thierachern | 34 | Staufen | 34 | | |
| Huttwil | 32 | Leuggern | 27 | | |
| Sumiswald | 30 | Münchwilen TG | 32 | | |
| Inwil | 38 | Savosa | 33 | | |
| Schenkon | 34 | Biasca | 33 | | |
| Triengen | 32 | Avenches | 24 | | |
| Nebikon | 30 | Prilly | 29 | | |
| Altendorf | 30 | Romanel-sur-Lausanne | 34 | | |
| Rothenthurm | 27 | Ecublens VD | 23 | | |
| Oberägeri | 28 | Le Chenit | 30 | | |
| Corminboeuf | 35 | Troistorrents | 26 | | |
| Châtel-Saint-Denis | 26 | Zermatt | 14 | | |
| Egerkingen | 24 | Cologny | 27 | | |
| Aesch BL | 26 | Satigny | 39 | | |
| Birsfelden | 24 | Troinex | 36 | | |
| Urnäsch | 32 | Veyrier | 26 | | |

*Note:* Data from the survey "Volunteering in Swiss Municipalities 2010"; RR = RR1 = the minimum response rate, is the number of complete interviews divided by the number of interviews (complete plus partial) plus the number of non-interviews (refusal and break-off plus non-contacts plus others) plus all cases of unknown eligibility (unknown if housing unit, plus unknown, other) (AAPOR 2011)

## Appendix A.2.2: Information on analyses of the World Values Survey 2005-2008

**Data**: Additional analyses were carried out using data from the World Values Survey 2005-2008 for 7 countries (Germany; Italy; France; Great Britain; Switzerland; Canada; USA). While the indicators differ slightly from the Swiss data, from a conceptual point of view they should measure the same constructs. The indicators that we used in our analyses are displayed in the table below. The single items on which the constructs load in the different models are also shown.

**Method/Estimator**: In contrast to the data used in our previous analyses (11-point answer scales that we regarded as continuous), the WVS data are ordinal. Following the recommendation in the MPLUS Users Guide v6 (p.531), we rely on weighted least square parameter estimates using a diagonal weight matrix with robust standard errors and mean- and variance-adjusted $\chi^2$ test statistic (Estimator = WLSMV). In contrast to classical confirmatory factor analyses, additional parameters are estimated in these analyses, for instance thresholds for the ordinal variables.

**Fit indices**: To evaluate the fit of our models we rely on cutoff criteria proposed by Yu (2002: 41, 160-161): A CFI cutoff value of 0.96 seems to be acceptable for binary, normal, and moderately non-normal continuous outcomes at N $\geq$ 250; for the WRMR a cutoff value of 0.95 or 1.0 is acceptable; for the TLI and RMSEA we used 0.95 and 0.06, respectively, as cutoff values.

Table A3: Items and models

| Item | Question wording in the WVS | Model A | Model B | Model C |
|---|---|---|---|---|
| Most people | Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? (Code one answer): Answer Scale: Most people can be trusted (1) - Need to be very careful (2) | Trust | Generalized trust | Generalized trust |
| Other questions | I'd like to ask you how much you trust people from various groups. Could you tell me for each whether you trust people from this group completely, somewhat, not very much or not at all? (Read out and code one answer for each): Answer Scale: Trust completely (1) - Trust somewhat (2) - Do not trust very much (3) - Do not trust at all (4) | | | |
| Meet first time | People you meet for the first time | | | |
| Other religion | People of another religion | | | Identity-based trust |
| Other nationality | People of another nationality | | | |
| Know personally | People you know personally | | Particularized trust | Particularized trust |
| Neighborhood | Your neighborhood | | | |

Table A4: Response rates across WVS countries

| **Country** | **Calculation of response rate** | **Response rate (%)** |
|---|---|---|
| Great Britain (2006) | no information | no information |
| Canada (2006) | Total of 2164 personal in-home interviews completed divided by total of 8192 contacts | 26 |
| France (2006) | no information | no information |
| Germany (2006) | Total of 2064 fully productive interviews divided by total of 4454 starting names | 46 |
| Italy (2005) | Total of 657 fully productive or partial productive interviews divided by total of 1000 starting names/addresses | 66 |
| Switzerland (2007) | Total of 1241 fully productive interviews divided by total of 4876 starting names/addresses | 25 |
| USA (2006) | Total of 1201 fully productive interviews and 48 partial productive interviews divided by total of 1710 starting names/addresses | 73 |

Source: Website of the World Values Survey http://www.wvsevsdb.com/

## Appendix A.2.3: Modification indices for Model C for all respondents and the language groups

Table A5: Modification indices for Model C

| | **All Respondents (N = 4289)** | **German-speaking Switzerland (n = 3307)** | **French-speaking Switzerland (n = 835)** | **Italian-speaking Switzerland (n = 147)** |
|---|---|---|---|---|
| Generalized Trust = Friends | 5.327 | 6.561 | 0.509 | 0.845 |
| Generalized Trust = Neighbors | 5.322 | 6.578 | 0.51 | 0.846 |
| Generalized Trust = Other religions | 4.12 | 4.268 | 0.778 | 0.239 |
| Generalized Trust = Other nationalities | 4.102 | 4.272 | 0.774 | 0.238 |
| Particularized Trust = Most people | 11.942 | 6.308 | 3.433 | 0.156 |
| Particularized Trust = Meet first time | 11.937 | 6.312 | 3.431 | 0.156 |
| Particularized Trust = Other religions | 4.113 | 4.335 | 0.775 | 0.238 |
| Particularized Trust = Other nationalities | 4.115 | 4.332 | 0.776 | 0.238 |
| Identity-based Trust = Most people | 11.947 | 6.324 | 3.433 | 0.155 |
| Identity-based Trust = Friends | 5.32 | 6.717 | 0.508 | 0.843 |
| Identity-based Trust = Neighbors | 5.321 | 6.711 | 0.508 | 0.848 |
| Identity-based Trust = Meet first time | 11.948 | 6.319 | 3.434 | 0.156 |
| Friends Most people | 1.376 | 0.523 | 0.259 | 0.655 |
| Neighbors Most people | 5.109 | 3.124 | 1.947 | 0.776 |
| Meet first time Friends | 10.139 | 9.375 | 1.204 | 0.003 |
| Meet first time Neighbors | 0.077 | 0.146 | 0.419 | 0.121 |
| Other religions Most people | 2.22 | 2.086 | 0.054 | 0.002 |
| Other religions Friends | 9.095 | 5.496 | 4.705 | 0.152 |
| Other religions Neighbors | 0.317 | 0.013 | 1.416 | 0.481 |
| Other religions Meet first time | 0.092 | 0.132 | 0.342 | 0.135 |
| Other nationalities Most people | 1.341 | 0.208 | 1.455 | 0.068 |
| Other nationalities Friends | 0.822 | 0 | 2.354 | 1.314 |
| Other nationalities Neighbors | 1.423 | 4.106 | 0.353 | 1.492 |
| Other nationalities Meet first time | 7.617 | 4.51 | 3.527 | 0.41 |

*Note:* Data from the survey "Volunteering in Swiss Municipalities 2010"; Estimated in Mplus; Missing values were treated with listwise deletion; MLM-estimator with robust standard errors and Satorra-Bentler scaled test statistic; = = MI for Loadings; = MI for error correlations;

## A.3 Appendix for Chapter 3: Negative experiences and trust

Table A6: Summary statistics

| Variable | Nr | N | Mean | SD | Median | Min. | Max. | Range |
|---|---|---|---|---|---|---|---|---|
| Trust 2003 | 1 | 4466 | 5.76 | 2.39 | 6 | 0 | 10 | 10 |
| Trust 2004 | 2 | 8035 | 5.66 | 2.45 | 6 | 0 | 10 | 10 |
| Trust 2005 | 3 | 6430 | 6.07 | 2.38 | 7 | 0 | 10 | 10 |
| Trust 2006 | 4 | 6383 | 6.15 | 2.29 | 7 | 0 | 10 | 10 |
| Trust 2007 | 5 | 5949 | 6.23 | 2.26 | 7 | 0 | 10 | 10 |
| Trust 2008 | 6 | 5793 | 6.26 | 2.27 | 7 | 0 | 10 | 10 |
| Trust 03 04 | 7 | 3922 | 0.27 | 2.25 | 0 | -10 | 10 | 20 |
| Trust 04 05 | 8 | 5942 | 0.29 | 2.21 | 0 | -10 | 10 | 20 |
| Trust 05 06 | 9 | 5403 | 0.06 | 2.06 | 0 | -10 | 10 | 20 |
| Trust 06 07 | 10 | 5321 | 0.01 | 1.97 | 0 | -10 | 10 | 20 |
| Trust 07 08 | 11 | 5149 | 0.02 | 1.94 | 0 | -10 | 10 | 20 |
| Threat 2004 | 12 | 8115 | 0.10 | 0.29 | 0 | 0 | 1 | 1 |
| Threat 2005 | 13 | 6461 | 0.09 | 0.28 | 0 | 0 | 1 | 1 |
| Threat 2006 | 14 | 6407 | 0.10 | 0.30 | 0 | 0 | 1 | 1 |
| Threat 2007 | 15 | 5970 | 0.09 | 0.29 | 0 | 0 | 1 | 1 |
| Threat 2008 | 16 | 5817 | 0.10 | 0.30 | 0 | 0 | 1 | 1 |
| Intense threat 2004 | 17 | 7471 | 0.02 | 0.13 | 0 | 0 | 1 | 1 |
| Intense threat 2005 | 18 | 5980 | 0.01 | 0.12 | 0 | 0 | 1 | 1 |
| Intense threat 2006 | 19 | 5880 | 0.02 | 0.12 | 0 | 0 | 1 | 1 |
| Intense threat 2007 | 20 | 5472 | 0.01 | 0.11 | 0 | 0 | 1 | 1 |
| Intense threat 2008 | 21 | 5300 | 0.01 | 0.10 | 0 | 0 | 1 | 1 |
| Injury 2004 | 22 | 8115 | 0.01 | 0.12 | 0 | 0 | 1 | 1 |
| Injury 2005 | 23 | 6462 | 0.01 | 0.12 | 0 | 0 | 1 | 1 |
| Injury 2006 | 24 | 6412 | 0.02 | 0.12 | 0 | 0 | 1 | 1 |
| Injury 2007 | 25 | 5973 | 0.01 | 0.12 | 0 | 0 | 1 | 1 |
| Injury 2008 | 26 | 5822 | 0.01 | 0.12 | 0 | 0 | 1 | 1 |
| Harassment 2004 | 27 | 8114 | 0.01 | 0.07 | 0 | 0 | 1 | 1 |
| Harassment 2005 | 28 | 6462 | 0.01 | 0.07 | 0 | 0 | 1 | 1 |
| Male[a] | 29 | 12248 | 0.49 | 0.50 | 0 | 0 | 1 | 1 |
| Age[a] | 30 | 12248 | 42.17 | 18.80 | 42 | 11 | 95 | 84 |
| Education 2003 | 31 | 5913 | 4.45 | 3.05 | 4 | 0 | 10 | 10 |
| Education 2004 | 32 | 12094 | 4.48 | 3.03 | 4 | 0 | 10 | 10 |
| Education 2005 | 33 | 9342 | 4.62 | 3.05 | 4 | 0 | 10 | 10 |
| Education 2006 | 34 | 8619 | 4.70 | 3.06 | 4 | 0 | 10 | 10 |
| Education 2007 | 35 | 7719 | 4.83 | 3.06 | 4 | 0 | 10 | 10 |
| Member 2003 | 36 | 12248 | 0.21 | 0.40 | 0 | 0 | 1 | 1 |
| Member 2004 | 37 | 12248 | 0.35 | 0.48 | 0 | 0 | 1 | 1 |
| Member 2005 | 38 | 12248 | 0.29 | 0.46 | 0 | 0 | 1 | 1 |
| Member 2006 | 39 | 12248 | 0.28 | 0.45 | 0 | 0 | 1 | 1 |
| Member 2007 | 40 | 12248 | 0.26 | 0.44 | 0 | 0 | 1 | 1 |
| Income 2003 | 41 | 2934 | 1.43 | 1.13 | 1 | 0 | 3 | 3 |
| Income 2004 | 42 | 5188 | 1.41 | 1.13 | 1 | 0 | 3 | 3 |
| Income 2005 | 43 | 4297 | 1.42 | 1.14 | 1 | 0 | 3 | 3 |
| Income 2006 | 44 | 4225 | 1.41 | 1.15 | 1 | 0 | 3 | 3 |
| Income 2007 | 45 | 4007 | 1.41 | 1.17 | 1 | 0 | 3 | 3 |
| Victim 2003 | 46 | 12248 | 0.01 | 0.10 | 0 | 0 | 1 | 1 |
| Victim 2004 | 47 | 12248 | 0.07 | 0.25 | 0 | 0 | 1 | 1 |
| Victim 2005 | 48 | 12248 | 0.05 | 0.22 | 0 | 0 | 1 | 1 |
| Victim 2006 | 49 | 12248 | 0.05 | 0.22 | 0 | 0 | 1 | 1 |
| Victim 2007 | 50 | 12248 | 0.05 | 0.21 | 0 | 0 | 1 | 1 |
| Unemployed 2003 | 51 | 4478 | 0.02 | 0.14 | 0 | 0 | 1 | 1 |
| Unemployed 2004 | 52 | 8109 | 0.02 | 0.14 | 0 | 0 | 1 | 1 |
| Unemployed 2005 | 53 | 6461 | 0.02 | 0.13 | 0 | 0 | 1 | 1 |
| Unemployed 2006 | 54 | 6408 | 0.02 | 0.14 | 0 | 0 | 1 | 1 |
| Unemployed 2007 | 55 | 5973 | 0.01 | 0.12 | 0 | 0 | 1 | 1 |
| Job Loss 03 04 | 56 | 3945 | 0.01 | 0.09 | 0 | 0 | 1 | 1 |
| Job Loss 04 05 | 57 | 5999 | 0.01 | 0.10 | 0 | 0 | 1 | 1 |
| Job Loss 05 06 | 58 | 5439 | 0.01 | 0.09 | 0 | 0 | 1 | 1 |
| Job Loss 06 07 | 59 | 5360 | 0.01 | 0.07 | 0 | 0 | 1 | 1 |
| Job Loss 07 08 | 60 | 5183 | 0.01 | 0.08 | 0 | 0 | 1 | 1 |
| Minority 2003 | 61 | 6018 | 0.01 | 0.09 | 0 | 0 | 1 | 1 |
| Minority 2004 | 62 | 12234 | 0.01 | 0.11 | 0 | 0 | 1 | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Minority 2005 | 63 | 9405 | 0.01 | 0.10 | 0 | 0 | 1 | 1 |
| Minority 2006 | 64 | 8658 | 0.01 | 0.10 | 0 | 0 | 1 | 1 |
| Minority 2007 | 65 | 7731 | 0.01 | 0.09 | 0 | 0 | 1 | 1 |

Table A7: Naive estimates for negative experiences on trust (Figure 3.2)

| | *Dependent variable:* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Trust 2004 (1) | Trust 2004 (2) | Trust 2004 (3) | Trust 2005 (4) | Trust 2005 (5) | Trust 2005 (6) | Trust 2006 (7) | Trust 2006 (8) | Trust 2007 (9) | Trust 2007 (10) | Trust 2008 (11) | Trust 2008 (12) |
| Threat 2004 | −0.79*** (0.09) | | | | | | | | | | | |
| Injury 2004 | | −0.82*** (0.23) | | | | | | | | | | |
| Harassment 2004 | | | −0.57 (0.37) | | | | | | | | | |
| Threat 2005 | | | | −0.87*** (0.10) | | | | | | | | |
| Injury 2005 | | | | | −1.11*** (0.24) | | | | | | | |
| Harassment 2005 | | | | | | −0.51 (0.39) | | | | | | |
| Threat 2006 | | | | | | | −0.73*** (0.09) | | | | | |
| Injury 2006 | | | | | | | | −1.01*** (0.23) | | | | |
| Threat 2007 | | | | | | | | | −0.80*** (0.09) | | | |
| Injury 2007 | | | | | | | | | | −1.32*** (0.22) | | |
| Threat 2008 | | | | | | | | | | | −0.65*** (0.09) | |
| Injury 2008 | | | | | | | | | | | | −0.69*** (0.22) |
| Constant | 5.73*** (0.03) | 5.67*** (0.03) | 5.66*** (0.03) | 6.15*** (0.03) | 6.09*** (0.03) | 6.08*** (0.03) | 6.20*** (0.03) | 6.15*** (0.03) | 6.22*** (0.03) | 6.17*** (0.03) | 6.28*** (0.03) | 6.23*** (0.03) |
| Observations | 8,035 | 8,035 | 8,034 | 6,511 | 6,511 | 6,511 | 6,633 | 6,637 | 6,955 | 6,958 | 6,867 | 6,874 |
| $R^2$ | 0.01 | 0.002 | 0.0003 | 0.01 | 0.003 | 0.0003 | 0.01 | 0.003 | 0.01 | 0.01 | 0.01 | 0.001 |
| Adjusted $R^2$ | 0.01 | 0.001 | 0.0002 | 0.01 | 0.003 | 0.0001 | 0.01 | 0.003 | 0.01 | 0.01 | 0.01 | 0.001 |

*Note:* Standard errors in parentheses; *p<0.1; **p<0.05; ***p<0.01; Source: Swiss Household Panel (SHP).

Table A8: Estimates for victimization on Δ trust (Figure 3.3)

| | *Dependent variable:* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Δ Trust 03 04 | Δ Trust 03 04 | Δ Trust 04 05 | Δ Trust 04 05 | Δ Trust 05 06 | Δ Trust 05 06 | Δ Trust 06 07 | Δ Trust 06 07 | Δ Trust 07 08 | Δ Trust 07 08 |
| | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (21) | (22) |
| Threat 2004 | −0.39*** | | | | | | | | | |
| | (0.14) | | | | | | | | | |
| Injury 2004 | | −0.46 | | | | | | | | |
| | | (0.40) | | | | | | | | |
| Threat 2005 | | | −0.25** | | | | | | | |
| | | | (0.10) | | | | | | | |
| Injury 2005 | | | | −0.38 | | | | | | |
| | | | | (0.26) | | | | | | |
| Threat 2006 | | | | | 0.04 | | | | | |
| | | | | | (0.10) | | | | | |
| Injury 2006 | | | | | | 0.06 | | | | |
| | | | | | | (0.24) | | | | |
| Threat 2007 | | | | | | | −0.20** | | | |
| | | | | | | | (0.09) | | | |
| Injury 2007 | | | | | | | | −0.36 | | |
| | | | | | | | | (0.24) | | |
| Threat 2008 | | | | | | | | | −0.06 | |
| | | | | | | | | | (0.09) | |
| Injury 2008 | | | | | | | | | | 0.15 |
| | | | | | | | | | | (0.21) |
| Constant | 0.30*** | 0.28*** | 0.31*** | 0.30*** | 0.06** | 0.06** | 0.03 | 0.02 | 0.06** | 0.05** |
| | (0.04) | (0.04) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) | (0.03) |
| Observations | 3,922 | 3,921 | 5,939 | 5,938 | 5,453 | 5,457 | 5,493 | 5,495 | 5,932 | 5,936 |
| $R^2$ | 0.002 | 0.0003 | 0.001 | 0.0004 | 0.0000 | 0.0000 | 0.001 | 0.0004 | 0.0001 | 0.0001 |
| Adjusted $R^2$ | 0.002 | 0.0001 | 0.001 | 0.0002 | −0.0002 | −0.0002 | 0.001 | 0.0002 | −0.0001 | −0.0001 |

*Note:* Standard errors in parentheses; *p<0.1; **p<0.05; ***p<0.01; Source: Swiss Household Panel (SHP).

Table A9: Estimates for victimization on Δ trust after matching on gender, age, education, membership, income, victimization (previous year), unemployment status, job loss and minority status (Figure 3.4)

| | *Dependent variable:* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Δ Trust 03 04 | Δ Trust 03 04 | Δ Trust 04 05 | Δ Trust 04 05 | Δ Trust 05 06 | Δ Trust 05 06 | Δ Trust 06 07 | Δ Trust 06 07 | Δ Trust 07 08 | Δ Trust 07 08 |
| | (23) | (24) | (25) | (26) | (27) | (28) | (29) | (30) | (31) | (32) |
| Threat 2004 | 0.16 | | | | | | | | | |
| | (0.19) | | | | | | | | | |
| Injury 2004 | | 0.42 | | | | | | | | |
| | | (0.41) | | | | | | | | |
| Threat 2005 | | | −0.26* | | | | | | | |
| | | | (0.15) | | | | | | | |
| Injury 2005 | | | | −0.06 | | | | | | |
| | | | | (0.39) | | | | | | |
| Threat 2006 | | | | | −0.04 | | | | | |
| | | | | | (0.13) | | | | | |
| Injury 2006 | | | | | | 0.14 | | | | |
| | | | | | | (0.32) | | | | |
| Threat 2007 | | | | | | | −0.01 | | | |
| | | | | | | | (0.14) | | | |
| Injury 2007 | | | | | | | | −0.63** | | |
| | | | | | | | | (0.31) | | |
| Threat 2008 | | | | | | | | | 0.03 | |
| | | | | | | | | | (0.12) | |
| Injury 2008 | | | | | | | | | | −0.33 |
| | | | | | | | | | | (0.34) |
| Male[a] | 0.36* | 0.24 | 0.02 | 0.13 | −0.15 | −0.91** | 0.21 | 0.77* | −0.20 | 0.28 |
| | (0.21) | (0.66) | (0.15) | (0.50) | (0.14) | (0.40) | (0.16) | (0.43) | (0.14) | (0.46) |
| Age[a] | 0.02*** | 0.01 | 0.003 | 0.05** | 0.01 | −0.01 | 0.01** | 0.04** | −0.01 | 0.02 |
| | (0.01) | (0.03) | (0.01) | (0.02) | (0.01) | (0.02) | (0.01) | (0.01) | (0.01) | (0.02) |
| Education[b] | 0.01 | 0.03 | 0.07** | 0.16 | 0.01 | 0.02 | 0.03 | 0.05 | −0.02 | −0.001 |
| | (0.04) | (0.13) | (0.03) | (0.10) | (0.03) | (0.09) | (0.03) | (0.08) | (0.03) | (0.08) |
| Member[b] | 0.13 | −0.64 | 0.07 | −0.04 | 0.10 | 0.33 | −0.38** | −0.72* | 0.27** | 0.72* |
| | (0.20) | (0.59) | (0.15) | (0.47) | (0.13) | (0.35) | (0.15) | (0.37) | (0.13) | (0.37) |
| Income[b] | −0.13 | −0.004 | −0.23*** | −0.80** | −0.06 | −0.15 | 0.02 | −0.28 | 0.14* | −0.37 |
| | (0.12) | (0.32) | (0.08) | (0.32) | (0.08) | (0.27) | (0.08) | (0.22) | (0.08) | (0.29) |
| Victim[b] | −0.03 | −0.42 | 0.07 | 0.34 | 0.41*** | 0.50 | −0.08 | −0.28 | 0.20 | 0.42 |
| | (0.30) | (0.57) | (0.15) | (0.46) | (0.14) | (0.35) | (0.14) | (0.35) | (0.13) | (0.38) |
| Unemployed[b] | 0.0005 | 1.38 | −0.70 | −1.07 | 0.16 | 1.17 | −0.18 | −1.35 | 0.83* | 0.82 |
| | (0.62) | (1.17) | (0.68) | (1.30) | (0.47) | (0.81) | (0.50) | (1.21) | (0.43) | (0.96) |
| Job Loss[c] | −1.53** | 0.14 | −0.44 | 0.17 | 0.52 | 0.43 | −1.50 | | 0.05 | −2.33* |
| | (0.72) | (1.11) | (0.51) | (1.37) | (0.71) | (1.28) | (0.93) | | (0.46) | (1.29) |
| Minority[b] | −0.87 | −1.91 | −1.74 | | | | −1.14 | | 2.00** | |
| | (1.00) | (1.42) | (1.35) | | | | (1.32) | | (0.86) | |
| Constant | −1.06*** | −0.62 | 0.24 | −1.19 | −0.21 | 0.16 | −0.60** | −0.42 | −0.15 | −0.70 |
| | (0.40) | (1.15) | (0.27) | (0.80) | (0.24) | (0.61) | (0.27) | (0.60) | (0.22) | (0.76) |
| Observations | 588 | 67 | 941 | 128 | 1,044 | 164 | 983 | 164 | 1,060 | 169 |
| $R^2$ | 0.03 | 0.18 | 0.02 | 0.10 | 0.01 | 0.06 | 0.02 | 0.09 | 0.02 | 0.08 |
| Adjusted $R^2$ | 0.01 | 0.03 | 0.01 | 0.03 | 0.004 | 0.004 | 0.01 | 0.04 | 0.01 | 0.02 |

*Note:* [a] = age and gender measured in 2004; [b] = measured at t-1; [c] = job loss between t-1 and t; Standard errors in parentheses; One-to-one genetic matching with replacement with population size 500 for genoud and 1000 bootstrap samples to generate balance statistics using "Matching" package for R (Version 4.8-3.4) (Sekhon 2011); *p<0.1; **p<0.05; ***p<0.01; Source: Swiss Household Panel (SHP).

Table A10: Balance statistics for Model 23 - Model 32 (Figure 3.4)

| Model: Outcome/Treatment | Variable | Mean diff before | P value before | Mean diff after | P value after | Orig. N | Orig. treated N | N matched obs. |
|---|---|---|---|---|---|---|---|---|
| M 23: Trust 03 04 | Male | 0.09 | 0.02 | 0.00 | 1.00 | 2558 | 209 | 379 |
| Threat 2004 | Age | -3.44 | 0.00 | -0.17 | 0.42 | 2558 | 209 | 379 |
| | Education 2003 | -0.15 | 0.47 | -0.04 | 0.48 | 2558 | 209 | 379 |
| | Member 2003 | -0.01 | 0.71 | 0.00 | 1.00 | 2558 | 209 | 379 |
| | Income 2003 | 0.05 | 0.50 | 0.02 | 0.45 | 2558 | 209 | 379 |
| | Victim 2003 | 0.12 | 0.00 | 0.00 | 1.00 | 2558 | 209 | 379 |
| | Unemployed 2003 | 0.01 | 0.24 | 0.00 | 0.32 | 2558 | 209 | 379 |
| | Job Loss 03 04 | 0.01 | 0.36 | 0.00 | 1.00 | 2558 | 209 | 379 |
| | Minority 2003 | 0.01 | 0.44 | 0.00 | 1.00 | 2558 | 209 | 379 |
| M 24: Trust 03 04 | Male | 0.15 | 0.16 | 0.00 | 1.00 | 2558 | 22 | 45 |
| Injury 2004 | Age | -10.64 | 0.00 | -0.21 | 0.74 | 2558 | 22 | 45 |
| | Education 2003 | -0.75 | 0.29 | -0.02 | 0.73 | 2558 | 22 | 45 |
| | Member 2003 | 0.05 | 0.64 | 0.00 | 1.00 | 2558 | 22 | 45 |
| | Income 2003 | -0.22 | 0.39 | 0.00 | 1.00 | 2558 | 22 | 45 |
| | Victim 2003 | 0.21 | 0.04 | 0.00 | 1.00 | 2558 | 22 | 45 |
| | Unemployed 2003 | 0.03 | 0.52 | 0.00 | 1.00 | 2558 | 22 | 45 |
| | Job Loss 03 04 | 0.03 | 0.45 | 0.00 | 1.00 | 2558 | 22 | 45 |
| | Minority 2003 | 0.04 | 0.38 | 0.00 | 1.00 | 2558 | 22 | 45 |
| M 25: Trust 04 05 | Male | 0.06 | 0.04 | 0.00 | 1.00 | 3867 | 337 | 604 |
| Threat 2005 | Age | -4.24 | 0.00 | 0.12 | 0.40 | 3867 | 337 | 604 |
| | Education 2004 | -0.27 | 0.12 | 0.04 | 0.45 | 3867 | 337 | 604 |
| | Member 2004 | 0.03 | 0.27 | 0.00 | 1.00 | 3867 | 337 | 604 |
| | Income 2004 | -0.06 | 0.38 | -0.01 | 0.53 | 3867 | 337 | 604 |
| | Victim 2004 | 0.42 | 0.00 | 0.00 | 1.00 | 3867 | 337 | 604 |
| | Unemployed 2004 | 0.00 | 0.97 | 0.00 | 1.00 | 3867 | 337 | 604 |
| | Job Loss 04 05 | 0.01 | 0.24 | 0.00 | 1.00 | 3867 | 337 | 604 |
| | Minority 2004 | 0.00 | 0.69 | 0.00 | 1.00 | 3867 | 337 | 604 |
| M 26: Trust 04 05 | Male | 0.29 | 0.00 | 0.00 | 1.00 | 3866 | 41 | 87 |
| Injury 2005 | Age | -14.11 | 0.00 | -0.11 | 0.64 | 3866 | 41 | 87 |
| | Education 2004 | -1.94 | 0.00 | -0.02 | 0.88 | 3866 | 41 | 87 |
| | Member 2004 | -0.12 | 0.13 | 0.00 | 1.00 | 3866 | 41 | 87 |
| | Income 2004 | -0.47 | 0.01 | 0.05 | 0.53 | 3866 | 41 | 87 |
| | Victim 2004 | 0.58 | 0.00 | 0.00 | 1.00 | 3866 | 41 | 87 |
| | Unemployed 2004 | 0.01 | 0.60 | 0.00 | 1.00 | 3866 | 41 | 87 |
| | Job Loss 04 05 | 0.01 | 0.62 | 0.00 | 1.00 | 3866 | 41 | 87 |
| | Minority 2004 | 0.00 | 0.00 | 0.00 | 1.00 | 3866 | 41 | 87 |
| M 27: Trust 05 06 | Male | 0.08 | 0.01 | 0 | 1.00 | 3601 | 365 | 679 |
| Threat 2006 | Age | -5.09 | 0.00 | 0 | 0.99 | 3601 | 365 | 679 |
| | Education 2005 | -0.47 | 0.01 | 0 | 1.00 | 3601 | 365 | 679 |
| | Member 2005 | 0.00 | 0.98 | 0 | 1.00 | 3601 | 365 | 679 |
| | Income 2005 | -0.15 | 0.02 | 0 | 1.00 | 3601 | 365 | 679 |
| | Victim 2005 | 0.33 | 0.00 | 0 | 1.00 | 3601 | 365 | 679 |
| | Unemployed 2005 | 0.01 | 0.32 | 0 | 1.00 | 3601 | 365 | 679 |
| | Job Loss 05 06 | 0.00 | 0.65 | 0 | 1.00 | 3601 | 365 | 679 |
| | Minority 2005 | -0.01 | 0.00 | 0 | 1.00 | 3601 | 365 | 679 |
| M 28: Trust 05 06 | Male | 0.24 | 0.00 | 0.00 | 1.00 | 3604 | 46 | 118 |
| Injury 2006 | Age | -16.22 | 0.00 | -0.05 | 0.86 | 3604 | 46 | 118 |
| | Education 2005 | -2.23 | 0.00 | -0.02 | 0.86 | 3604 | 46 | 118 |
| | Member 2005 | -0.10 | 0.20 | 0.00 | 1.00 | 3604 | 46 | 118 |
| | Income 2005 | -0.64 | 0.00 | 0.00 | 1.00 | 3604 | 46 | 118 |
| | Victim 2005 | 0.41 | 0.00 | 0.00 | 1.00 | 3604 | 46 | 118 |
| | Unemployed 2005 | 0.03 | 0.31 | 0.00 | 1.00 | 3604 | 46 | 118 |
| | Job Loss 05 06 | 0.01 | 0.60 | 0.00 | 1.00 | 3604 | 46 | 118 |
| | Minority 2005 | -0.01 | 0.00 | 0.00 | 1.00 | 3604 | 46 | 118 |
| M 29: Trust 06 07 | Male | 0.11 | 0.00 | 0.00 | 0.86 | 3502 | 342 | 641 |
| Threat 2007 | Age | -6.63 | 0.00 | -0.02 | 0.78 | 3502 | 342 | 641 |
| | Education 2006 | -0.68 | 0.00 | 0.01 | 0.76 | 3502 | 342 | 641 |
| | Member 2006 | 0.04 | 0.17 | 0.00 | 1.00 | 3502 | 342 | 641 |
| | Income 2006 | -0.18 | 0.01 | 0.00 | 0.86 | 3502 | 342 | 641 |
| | Victim 2006 | 0.38 | 0.00 | 0.00 | 1.00 | 3502 | 342 | 641 |
| | Unemployed 2006 | 0.01 | 0.32 | 0.00 | 1.00 | 3502 | 342 | 641 |
| | Job Loss 06 07 | 0.00 | 0.86 | 0.00 | 1.00 | 3502 | 342 | 641 |
| | Minority 2006 | 0.00 | 0.22 | 0.00 | 1.00 | 3502 | 342 | 641 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| M 30: Trust 06 07 | Male | 0.30 | 0.00 | 0.00 | 1.00 | 3504 | 49 | 115 |
| Injury 2007 | Age | -13.92 | 0.00 | -0.06 | 0.90 | 3504 | 49 | 115 |
| | Education 2006 | -1.99 | 0.00 | 0.04 | 0.53 | 3504 | 49 | 115 |
| | Member 2006 | 0.09 | 0.18 | 0.00 | 1.00 | 3504 | 49 | 115 |
| | Income 2006 | -0.65 | 0.00 | 0.00 | 1.00 | 3504 | 49 | 115 |
| | Victim 2006 | 0.45 | 0.00 | 0.00 | 1.00 | 3504 | 49 | 115 |
| | Unemployed 2006 | 0.01 | 0.74 | 0.00 | 1.00 | 3504 | 49 | 115 |
| | Job Loss 06 07 | -0.01 | 0.00 | 0.00 | 1.00 | 3504 | 49 | 115 |
| | Minority 2006 | -0.01 | 0.00 | 0.00 | 1.00 | 3504 | 49 | 115 |
| M 31: Trust 07 08 | Male | 0.10 | 0.00 | 0.00 | 1.00 | 3480 | 372 | 688 |
| Threat 2008 | Age | -7.70 | 0.00 | 0.01 | 0.98 | 3480 | 372 | 688 |
| | Education 2007 | -0.81 | 0.00 | 0.00 | 1.00 | 3480 | 372 | 688 |
| | Member 2007 | 0.01 | 0.75 | 0.00 | 1.00 | 3480 | 372 | 688 |
| | Income 2007 | -0.20 | 0.00 | 0.00 | 1.00 | 3480 | 372 | 688 |
| | Victim 2007 | 0.38 | 0.00 | 0.00 | 1.00 | 3480 | 372 | 688 |
| | Unemployed 2007 | 0.01 | 0.10 | 0.00 | 1.00 | 3480 | 372 | 688 |
| | Job Loss 07 08 | 0.01 | 0.06 | 0.00 | 1.00 | 3480 | 372 | 688 |
| | Minority 2007 | 0.00 | 0.73 | 0.00 | 1.00 | 3480 | 372 | 688 |
| M 32: Trust 07 08 | Male | 0.30 | 0.00 | 0.00 | 1.00 | 3482 | 54 | 115 |
| Injury 2008 | Age | -9.79 | 0.00 | -0.08 | 0.62 | 3482 | 54 | 115 |
| | Education 2007 | -1.14 | 0.01 | -0.04 | 0.64 | 3482 | 54 | 115 |
| | Member 2007 | 0.04 | 0.54 | 0.00 | 1.00 | 3482 | 54 | 115 |
| | Income 2007 | -0.23 | 0.18 | 0.02 | 0.71 | 3482 | 54 | 115 |
| | Victim 2007 | 0.46 | 0.00 | 0.00 | 1.00 | 3482 | 54 | 115 |
| | Unemployed 2007 | 0.03 | 0.30 | 0.00 | 1.00 | 3482 | 54 | 115 |
| | Job Loss 07 08 | 0.01 | 0.53 | 0.00 | 1.00 | 3482 | 54 | 115 |
| | Minority 2007 | -0.01 | 0.00 | 0.00 | 1.00 | 3482 | 54 | 115 |

Table A11: Estimates for victimization of high intensity on Δ trust after matching on gender, age, education, membership, income, victimization (previous year), unemployment status, job loss and minority status (Figure 3.5)

| | *Dependent variable:* | | | | |
|---|---|---|---|---|---|
| | Δ Trust 03 04 | Δ Trust 04 05 | Δ Trust 05 06 | Δ Trust 06 07 | Δ Trust 07 08 |
| | (33) | (34) | (35) | (36) | (37) |
| Intense threat 2004 | −0.19 | | | | |
| | (0.55) | | | | |
| Intense threat 2005 | | −0.49 | | | |
| | | (0.44) | | | |
| Intense threat 2006 | | | −0.46 | | |
| | | | (0.42) | | |
| Intense threat 2007 | | | | −0.39 | |
| | | | | (0.43) | |
| Intense threat 2008 | | | | | −0.14 |
| | | | | | (0.46) |
| Male[a] | −1.42* | 0.63 | 0.69 | −0.50 | −1.45* |
| | (0.75) | (0.55) | (0.55) | (0.47) | (0.82) |
| Age[a] | 0.01 | 0.01 | −0.01 | −0.01 | 0.01 |
| | (0.03) | (0.03) | (0.02) | (0.02) | (0.03) |
| Education[b] | −0.17 | −0.02 | −0.05 | 0.12 | 0.04 |
| | (0.14) | (0.09) | (0.10) | (0.09) | (0.13) |
| Member[b] | 1.12 | −0.28 | −0.54 | −0.47 | 0.66 |
| | (0.69) | (0.47) | (0.44) | (0.48) | (0.81) |
| Income[b] | 0.50 | −0.54** | −0.29 | −0.04 | 0.40 |
| | (0.40) | (0.27) | (0.26) | (0.23) | (0.38) |
| Victim[b] | 0.35 | −0.21 | 0.83 | −0.51 | −0.21 |
| | (1.38) | (0.51) | (0.54) | (0.46) | (0.57) |
| Unemployed[b] | 1.46 | −0.36 | 0.21 | −0.98 | |
| | (1.80) | (1.62) | (0.88) | (1.48) | |
| Job Loss[c] | | 0.04 | 1.23 | | −0.85 |
| | | (1.04) | (1.53) | | (1.27) |
| Minority[b] | −0.51 | | | | 0.40 |
| | (1.44) | | | | (1.30) |
| Constant | −0.10 | 1.37 | 1.32 | 0.21 | −0.95 |
| | (1.59) | (1.24) | (1.04) | (0.73) | (1.26) |
| Observations | 77 | 104 | 106 | 145 | 90 |
| $R^2$ | 0.11 | 0.07 | 0.12 | 0.06 | 0.07 |
| Adjusted $R^2$ | −0.01 | −0.02 | 0.03 | 0.01 | −0.03 |

*Note:* [a] = age and gender measured in 2004; [b] = measured at t-1; [c] = job loss between t-1 and t; Standard errors in parentheses; One-to-one genetic matching with replacement with population size 500 for genoud and 1000 bootstrap samples to generate balance statistics using "Matching" package for R (Version 4.8-3.4) (Sekhon 2011); *p<0.1; **p<0.05; ***p<0.01; Source: Swiss Household Panel (SHP).

Table A12: Balance statistics for Model 33 - Model 37 (Figure 3.5)

| Model: Outcome/Treatment | Variable | Mean diff before | P value before | Mean diff after | P value after | Orig. N | Orig. treated N | N matched obs. |
|---|---|---|---|---|---|---|---|---|
| M 33: Trust 03 04 | Male | -0.18 | 0.05 | 0.00 | 1.00 | 2379 | 30 | 47 |
| Intense threat 2004 | Age | 0.55 | 0.80 | -0.10 | 0.83 | 2379 | 30 | 47 |
| | Education 2003 | -0.06 | 0.91 | -0.03 | 0.82 | 2379 | 30 | 47 |
| | Member 2003 | -0.15 | 0.11 | 0.00 | 1.00 | 2379 | 30 | 47 |
| | Income 2003 | -0.08 | 0.68 | 0.00 | 1.00 | 2379 | 30 | 47 |
| | Victim 2003 | 0.05 | 0.27 | 0.00 | 1.00 | 2379 | 30 | 47 |
| | Unemployed 2003 | 0.02 | 0.59 | 0.00 | 1.00 | 2379 | 30 | 47 |
| | Job Loss 03 04 | -0.01 | 0.00 | 0.00 | 1.00 | 2379 | 30 | 47 |
| | Minority 2003 | 0.06 | 0.19 | 0.03 | 0.32 | 2379 | 30 | 47 |
| M 34: Trust 04 05 | Male | -0.14 | 0.06 | 0.00 | 1.00 | 3574 | 44 | 60 |
| Intense threat 2005 | Age | 1.55 | 0.33 | 0.02 | 0.97 | 3574 | 44 | 60 |
| | Education 2004 | 0.29 | 0.52 | 0.00 | 1.00 | 3574 | 44 | 60 |
| | Member 2004 | -0.04 | 0.65 | 0.02 | 0.81 | 3574 | 44 | 60 |
| | Income 2004 | 0.17 | 0.31 | 0.02 | 0.80 | 3574 | 44 | 60 |
| | Victim 2004 | 0.45 | 0.00 | 0.00 | 1.00 | 3574 | 44 | 60 |
| | Unemployed 2004 | 0.01 | 0.63 | 0.00 | 1.00 | 3574 | 44 | 60 |
| | Job Loss 04 05 | 0.06 | 0.15 | 0.00 | 1.00 | 3574 | 44 | 60 |
| | Minority 2004 | 0.00 | 0.00 | 0.00 | 1.00 | 3574 | 44 | 60 |
| M 35: Trust 05 06 | Male | -0.17 | 0.02 | 0.00 | 1.00 | 3279 | 43 | 63 |
| Intense threat 2006 | Age | 1.68 | 0.39 | -0.12 | 0.71 | 3279 | 43 | 63 |
| | Education 2005 | -0.27 | 0.49 | -0.09 | 0.73 | 3279 | 43 | 63 |
| | Member 2005 | -0.04 | 0.62 | 0.00 | 1.00 | 3279 | 43 | 63 |
| | Income 2005 | -0.17 | 0.31 | 0.00 | 1.00 | 3279 | 43 | 63 |
| | Victim 2005 | 0.26 | 0.00 | 0.00 | 1.00 | 3279 | 43 | 63 |
| | Unemployed 2005 | 0.06 | 0.15 | 0.00 | 1.00 | 3279 | 43 | 63 |
| | Job Loss 05 06 | 0.01 | 0.59 | 0.00 | 1.00 | 3279 | 43 | 63 |
| | Minority 2005 | -0.01 | 0.00 | 0.00 | 1.00 | 3279 | 43 | 63 |
| M 36: Trust 06 07 | Male | 0.01 | 0.86 | 0.00 | 1.00 | 3199 | 39 | 106 |
| Intense threat 2007 | Age | -4.72 | 0.07 | -0.19 | 0.88 | 3199 | 39 | 106 |
| | Education 2006 | -0.40 | 0.45 | -0.03 | 0.75 | 3199 | 39 | 106 |
| | Member 2006 | -0.07 | 0.42 | 0.00 | 1.00 | 3199 | 39 | 106 |
| | Income 2006 | -0.41 | 0.03 | 0.00 | 1.00 | 3199 | 39 | 106 |
| | Victim 2006 | 0.26 | 0.00 | 0.00 | 1.00 | 3199 | 39 | 106 |
| | Unemployed 2006 | 0.01 | 0.62 | 0.00 | 1.00 | 3199 | 39 | 106 |
| | Job Loss 06 07 | -0.01 | 0.00 | 0.00 | 1.00 | 3199 | 39 | 106 |
| | Minority 2006 | -0.01 | 0.00 | 0.00 | 1.00 | 3199 | 39 | 106 |
| M 37: Trust 07 08 | Male | -0.19 | 0.04 | 0.00 | 1.00 | 3136 | 28 | 62 |
| Intense threat 2008 | Age | 2.18 | 0.41 | 0.02 | 0.95 | 3136 | 28 | 62 |
| | Education 2007 | -1.13 | 0.05 | -0.03 | 0.84 | 3136 | 28 | 62 |
| | Member 2007 | -0.27 | 0.01 | 0.00 | 1.00 | 3136 | 28 | 62 |
| | Income 2007 | -0.31 | 0.13 | 0.00 | 1.00 | 3136 | 28 | 62 |
| | Victim 2007 | 0.26 | 0.01 | 0.00 | 1.00 | 3136 | 28 | 62 |
| | Unemployed 2007 | -0.01 | 0.00 | 0.00 | 1.00 | 3136 | 28 | 62 |
| | Job Loss 07 08 | 0.03 | 0.40 | 0.00 | 1.00 | 3136 | 28 | 62 |
| | Minority 2007 | 0.03 | 0.42 | 0.00 | 1.00 | 3136 | 28 | 62 |

## A.4 Appendix for Chapter 4: Direct democracy and political trust

Table A13: Overview of variables

| **Variable** | **Expected relationship** | **Operationalization/ Source** |
|---|---|---|
| *Dependent variable* | | |
| Political trust | | Trust toward cantonal political authorities; 0 ≙ no trust, 10 ≙ high trust |
| *Independent variables: Individual level* | | |
| Age | Elderly are less critical of political institutions resulting in higher trust. | Age in years |
| Sex | Men are less critical of political institution than women resulting in higher trust. | Dummy; 1 ≙ Male, 2 ≙ Female |
| Education | The higher the level of education, the higher political trust. | Level of education |
| Catholic | Catholics exhibit more trust toward authorities. | Dummy; 0 ≙ no Catholic, 1 ≙ Catholic |
| Economy worse | People who perceive that the economy got worse exhibit lower trust toward authorities. | Dummy; 0 ≙ stayed the same/got better, 1 ≙ got worse |
| Unemployed | Unemployed exhibit lower trust toward authorities. | Dummy; 0 ≙ not unemployed, 1 ≙ unemployed |
| *Independent variables: Contextual level* | | |
| Direct democracy: Availability of rights | The more extensive direct democratic rights in a canton, the higher political trust should be (H1). | Index by Fischer (2009) for 2003; 1 ≙ restrictive rights, 6 ≙ permissive rights |
| Direct democracy: Actual use | The more extensive the actual use of direct democratic instruments in a canton, the lower political trust should be (H2). | Frequency of initiatives and optional referendums per year averaged 2002–2006 according to Année Politique Suisse |
| Financial state | The better the financial state of a canton, the higher political trust. | Index of financial state in 2006 according to IDHEAP; 1 ≙ poor, 6 ≙ excellent |
| National income | The higher the national income of a canton, the higher political trust. | Primary national income per capita in 2005 according to BADAC; in 100,000 SFR |
| Language region | Political trust is higher in German speaking cantons. | Dummy; 0 ≙ Roman canton, 1 ≙ German speaking canton |
| *Independent variables: Instrumental regression* | | |
| Population density | The higher the population density, the easier are initiatives and optional referendums, and thus the lower political trust. | Number of inhabitants per $km^2$ in 2000 according to BADAC |
| Urban or rural area | Political trust should be higher in urban contexts. | Dummy; 1 ≙ urban, 2 ≙ rural |
| Size of canton | Political trust should be higher in smaller cantons. | Surface according to Swiss Federal Statistical Office in $km^2$ |
| Inhabitants | Political trust should be higher cantons with fewer inhabitants. | Total number of inhabitants in 2007 according to BADAC |

Table A14: Summary statistics

| **Variable** | **N** | **Mean** | **Std. dev.** | **Min** | **Max** |
|---|---|---|---|---|---|
| Political Trust in cantonal political authorities | 4259 | 6.51 | 2.02 | 0 | 10 |
| *Individual level* | | | | | |
| Age | 4392 | 51.94 | 17.67 | 18 | 96 |
| Sex | 4392 | 1.55 | 0.5 | 1 | 2 |
| Education | 4352 | 6.31 | 3.55 | 0 | 12 |
| Catholic | 4392 | 0.42 | 0.49 | 0 | 1 |
| Economy worse | 4392 | 0.1 | 0.3 | 0 | 1 |
| Unemployed | 4392 | 0.01 | 0.11 | 0 | 1 |
| *Contextual level* | | | | | |
| Direct democracy: Availability of rights | 25 | 4.14 | 1.13 | 1.75 | 5.5 |
| Direct democracy: Actual use | 25 | 1.38 | 1.26 | 0 | 4 |
| Financial state | 25 | 5.46 | 0.96 | 2.12 | 6 |
| National income | 25 | 0.42 | 0.06 | 0.33 | 0.6 |
| Language region | 25 | 0.72 | 0.46 | 0 | 1 |
| *Instrumental regression* | | | | | |
| Population density | 25 | 474 | 1018 | 26 | 5083 |
| Urban or rural area | 4392 | 1.29 | 0.45 | 1 | 2 |
| Size of canton | 25 | 164035 | 187715 | 3700 | 710544 |
| Inhabitants | 25 | 302128 | 309042 | 15471 | 1307570 |

# Bibliography


Adam, Frane. 2008. "Mapping social capital across Europe: findings, trends and methodological shortcomings of cross-national surveys." *Social Science Information* 47:159–186.

Algan, Yann and Pierre Cahuc. 2013. "Trust and growth." *Annual Review of Economics* 5(1):521–549.

Allison, Paul D. 1990. "Change scores as dependent variables in regression analysis." *Sociological Methodology* 20:93–114.

Almond, Gabriel A. and Sidney Verba. 1963. *The Civic Culture: Political Attitudes and Democracy in Five Nations*. Princeton, New Jersey: Princeton University Press.

Almond, Gabriel A. and Sidney Verba. 1989. *The civic culture: Political attitudes and democracy in five nations*. Newbury Park, California: Sage.

Angrist, Joshua D and Jörn-Steffen Pischke. 2008. *Mostly harmless econometrics: An empiricist's companion*. Princeton, New Jersey: Princeton University Press.

Année politique Suisse, ed. Various volumes. *Jahrbuch Schweizerische Politik*. Bern: Institut für Politikwissenschaft.

Ashraf, Nava, Iris Bohnet and Nikita Piankov. 2006. "Decomposing trust and trustworthiness." *Experimental Economics* 9:193–208.

Averdijk, Margit Dianne Esther. 2010. Individuals' victimization patterns over time. PhD thesis at the Free University Amsterdam.

Bacharach, Michael and Diego Gambetta. 2001. Trust in Signs. In *Trust in Society*, ed. Karen S. Cook. New York: Russell Sage Foundation pp. 148–184.

Badescu, Gabriel. 2003. Social Trust and Democratization in the Post-Communist Societies. In *Social Capital and the Transition to Democracy*, ed. Gabriel Badescu and Eric M. Uslaner. London: Routledge pp. 120–139.

Baier, Annette. 1986. "Trust and Antitrust." *Ethics* 96:231–260.

Barankay, Iwan, Pascal Sciarini and Alexander H. Trechsel. 2003. "Institutional Openness and the Use of Referendums and Popular Initiatives: Evidence from Swiss Cantons." *Swiss Political Science Review* 9(1):169–199.

Barber, Bernard. 1983. *The logic and limits of trust.* New Brunswick, New Jersey: Rutgers University Press.

Bard, Morton and Dawn Sangrey. 1986. *The crime victim's book.* New York: Brunner/Mazel.

Barr, Abigail. 2003. "Trust and Expected Trustworthiness: Experimental Evidence from Zimbabwean Villages." *The Economic Journal* 113(489):614–630.

Bauer, Paul C. 2014*a*. "Conceptualizing and Measuring Trust and Trustworthiness." *Political Concepts: Committee on Concepts and Methods Working Paper Series* 61:1–27.

Bauer, Paul C. 2014*b*. "Negative Experiences and Trust: A Causal Analysis of the Effects of Victimization on Generalized Trust." *European Sociological Review* Advance Access:1–21.

Bauer, Paul C and Matthias Fatke. 2014. "Direct Democracy and Political Trust: Enhancing Trust, Initiating Distrust-or Both?" *Swiss Political Science Review* 20(1):49–69.

Bauer, Paul C, Pablo Barbera, Kathrin Ackermann and Aaron Venetz. 2014. "Vague Concepts in Survey Questions: A General Problem Illustrated with the Left-Right Scale." *Available at SSRN* 2467595:1–39.

Becker, Lawrence C. 1996. "Trust as Noncognitive Security about Motives." *Ethics* 107(1):pp. 43–61.

Bekkers, René. 2012. "Trust and volunteering: Selection or causation? Evidence from a 4 year panel study." *Political Behavior* 34(2):225–247.

Bellemare, Charles and Sabine Kroeger. 2007. "On representative social capital." *European Economic Review* 51:183–202.

Ben-Ner, Avner and Freyr Halldorsson. 2010. "Trusting and trustworthiness: What are they, how to measure them, and what affects them." *Journal of Economic Psychology* 31:64–79.

Berg, Joyce, John Dickhaut and Kevin McCabe. 1995. "Trust, Reciprocity, and Social History." *Games and Economic Behavior* 10(1):122–142.

Bernhard, Laurent and Bühlmann. 2011. "Does Direct Democracy Make Citizens Feel More Efficacious? The Swiss Experience." Paper presented at the conference Direkte Demokratie - Forschungsstand und Perspektiven, March 18-20, 2011, Tutzing.

Beugelsdijk, Sjoerd. 2006. "A note on the theory and measurement of trust in explaining differences in economic growth." *Cambridge Journal of Economics* 30:371–387.

Bigley, Gregory A and Jone L Pearce. 1998. "Straining for shared meaning in organization science: Problems of trust and distrust." *Academy of Management Review* 23(3):405–

421.

Bjornskov, Christian. 2006. "The multiple facets of social capital." *European Journal of Political Economy* 22(1):22–40.

Blau, Peter Michael. 1964. *Exchange and power in social life.* New Brunswick, New Jersey: Transaction Publishers.

Boehmke, Frederick J. and Daniel C. Bowen. 2010. "Direct Democracy and Individual Interest Group Membership." *Journal of Politics* 72(3):659–671.

Bottazzi, Laura, Marco Da Rin and Thomas F Hellmann. 2011. The importance of trust for investment: Evidence from venture capital. Technical report National Bureau of Economic Research.

Bound, John, David A. Jaeger and Regina M. Baker. 1995. "Problems with Instrumental Variables Estimation when the Correlation between the Instruments and the Endogenous Explanatory Variable is Weak." *Journal of the American Statistical Association* 90(430):443–450.

Bowler, Shaun and Todd Donovan. 2002. "Democracy, Institutions and Attitudes about Citizen Influence on Government." *British Journal of Political Science* 32(2):371–390.

Braakmann, Nils. 2011. "New evidence on the non-monetary cost of crime based on within-community variation in victimization risks." *Newcastle Discussion Papers in Economics* 3:1–26.

Brand, Sam, Richard Price and Great Britain. 2000. *The economic and social costs of crime.* London: United Kingdom Home Office.

Brehm, J. and W. Rahn. 1997. "Individual-level evidence for the causes and consequences of social capital." *American Journal of Political Science* 41(3):999–1023.

Brewer, Marilynn B. 1981. Ethnocentrism and its role in interpersonal trust. In *Scientific Inquiry and the Social Sciences: A Volume in Honor of Donald T. Campbell*, ed. Marilynn B. Brewer. San Francisco, CA: Jossey-Bass pp. 214–231.

Bromiley, Philip and Larry L Cummings. 1995. "Transactions costs in organizations with trust." *Research on negotiation in organizations* 5:219–250.

Brown, Timothy M. 2006. *Confirmatory factor analysis for applied research.* New York, London: Guilford.

Bühlmann, Marc. 2007. Direkte Demokratie und politische Unterstützung. In *Direkte Demokratie: Bestandsaufnahmen und Wirkungen im internationalen Vergleich*, ed. Markus Freitag and Uwe Wagschal. Münster: Lit pp. 217–250.

Burns, Calvin, Kathryn Mearns and Peter McGeorge. 2006. "Explicit and implicit trust within safety culture." *Risk Analysis* 26(5):1139–1150.

Burns, John, Alan Brenner, Keith Kiser, Michael Krot, Clare Llewellyn and Ronald Snyder. 2009. JSTOR-Data for Research. In *Research and Advanced Technology for Digital Libraries*, ed. Maristella Agosti, José Luis Borbinha, Sarantos Kapidakis, Christos Papatheodorou and Giannis Tsakonas. Heidelberg: Springer pp. 416–419.

Burns, Nancy, Donald Kinder and Wendy Rahn. 2003. "Social trust and democratic politics." Paper prepared for the Annual Meeting of the Mid-West Political Science Association, Chicago Illinois, April 2003.

Buskens, Vincent and Jeroen Weesie. 2000. "An Experiment on the Effects of Embeddedness in Trust Situations: Buying a used car." *Rationality and Society* 12(2):227–253.

Buskens, Vincent, Werner Raub and Joris van der Veer. 2010. "Trust in triads: An experimental study." *Social Networks* 32:301–312.

Butler, David and Austin Ranney, eds. 1994. *Referendums around the world.* Washington, DC: AEI Press.

Byrne, Barbara M. 2010. *Structural Equation Modeling with Amos. Basic Concepts, Applications, and Programming.* New York, NY: Taylor and Francis Group.

Byrne, Barbara M., Richard Shavelson and Bengt O. Muthén. 1989. "Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement in variance." *Psychological Bulletin* 105:456–466.

Cain, Bruce E., Russell J. Dalton and Susan E. Scarrow. 2003. *Democracy Transformed? The Expanding Political Opportunities in Advanced Industrial Democracies.* Oxford: Oxford University Press.

Camerer, Colin F. 2003. *Behavioral Game Theory: Experiments in Strategic Interaction.* Princeton: Princeton University Press.

Capra, C. Mónica, Kelli Lanier and Shireen Meer. 2008. "Attitudinal and Behavioral Measures of trust: a New Comparison." *Available at SSRN* 1091539:1–51.

Carlin, Ryan E. 2014. "What's not to trust? Rubrics of political party trustworthiness in Chile and Argentina." *Party Politics* 20(1):63–77.

Carlin, Ryan E and Gregory J Love. 2013. "The Politics of Interpersonal Trust and Reciprocity: An Experimental Approach." *Political Behavior* 35(1):1–21.

Chen, Fang F. 2007. "Sensitivity of Goodness of Fit Indexes to Lack of Measurement Invariance." *Structural Equation Modeling* 14(3):464–504.

Citrin, Jack. 1974. "Comment: The Political Relevance of Trust in Government." *American Political Science Review* 68(3):973–988.

Citrin, James S. 1996. Who is the boss? Direct democracy and popular control of government. In *Broken contract? Changing relationship between Americans and their*

*government*, ed. Stephen C. Craig. Boulder: Westview pp. 268–293.

Citrin, James S. and Christopher Muste. 1999. Trust in government. In *Measures of Political Attitudes*, ed. John P. Robinson, Phillip R. Shaver and Lawrence S. Wrightsman. New York: Academic Press pp. 465–532.

Clinton, Joshua D. and Charles F. Manski. 2002. "Empirical probability scales for verbal expectations data, with Application to Expectations of Job Loss." Unpublished Working Paper.

Cohen, Mark A. 2004. *The costs of crime and justice*. Oxon: Routledge.

Coleman, James S. 1990. *Foundations of Social Theory*. Cambridge: Harvard University Press.

Colquitt, Jason A., Brent A. Scott, and Jeffery A. LePine. 2007. "Trust, Trustworthiness, and Trust Propensity: A Meta-Analytic Test of Their Unique Relationships With Risk Taking and Job Performance." *Journal of Applied Psychology* 92(4):909–927.

Cook, Karen S. and Robin M. Cooper. 2003. Experimental studies of cooperation, trust, and social exchange. In *Trust and Reciprocity*, ed. Elinor Ostrom and James Walker. New York: Russell Sage Foundation pp. 209–244.

Cook, Karen S., Russel Hardin and Margaret Levi. 2005. *Cooperation without trust?* New York: Russell Sage Foundation.

Couch, Laurie L and Warren H Jones. 1997. "Measuring levels of trust." *Journal of Research in Personality* 31(3):319–336.

Croson, Rachel and Nancy Buchan. 1999. "Gender and Culture: International Experimental Evidence from Trust Games." *The American Economic Review* 89(2):386–391.

Dasgupta, Partha. 1988. Trust as a commodity. In *Trust: Making and Breaking Cooperative Relations*, ed. Diego Gambetta. New York: Basil Blackwell pp. 49–72.

Davidov, Eldad. 2009. "Measurement Equivalence of Nationalism and Constructive Patriotism in the ISSP: 34 Countries in a Comparative Perspective." *Political Analysis* 17(1):64–82.

Davidov, Eldad, Bart Meuleman, Jan Cieciuch, Peter Schmidt and Jaak Billiet. 2014. "Measurement Equivalence in Cross-National Research." *Annual Review of Sociology* 40:Forthcoming.

Davis, James A. 1985. *The Logic of Causal Order*. Newbury Park: Sage Publications.

De Tocqueville, Alexis. 2002. *Democracy in America*. Pennsylvania: Pennsylvania State University Electronic Classics Series.

Delhey, Jan and Kenneth Newton. 2005. "Predicting Cross-National Levels of Social Trust. Global Pattern or Nordic Exceptionalism?" *European Sociological Review*

21(4):311–327.

Delhey, Jan, Kenneth Newton and Christian Welzel. 2011. "How General Is Trust in "Most People"? Solving the Radius of Trust Problem." *American Sociological Review* 76(5):786–807.

Delhey, Jan, Kenneth Newton and Christian Welzel. 2014. "The Radius of Trust Problem Remains Resolved." *American Sociological Review* 79(6):1260–1265.

Denkers, Adriaan J. M. and Frans Willem Winkel. 1998. "Crime victims' well-being and fear in a prospective and longitudinal study." *International Review of Victimology* 5(2):141–162.

Deth, Jan van. 2009. Establishing Equivalence. In *The Sage Handbook of Comparative Politics*, ed. Todd Landmann and Neil Robinson. London: Sage pp. 84–100.

Deutsch, Morton. 1960. "The Effect of Motivational Orientation upon Trust and Suspicion." *Human Relations* 13:123–139.

Dinesen, Peter Thisted. 2010. "Upbringing, early experiences of discrimination and social identity: Explaining generalised trust among immigrants in Denmark." *Scandinavian Political Studies* 33(1):93–111.

Dinesen, Peter Thisted. 2012. "Parental transmission of trust or perceptions of institutional fairness: generalized trust of non-western immigrants in a high-trust society." *Comparative Politics* 44(3):273–289.

Dinesen, Peter Thisted. 2013. "Where You Come From or Where You Live? Examining the Cultural and Institutional Explanation of Generalized Trust Using Migration as a Natural Experiment." *European Sociological Review* 29(1):114–128.

Dinesen, Peter Thisted and Marc Hooghe. 2010. "When in Rome, do as the Romans do: the acculturation of generalized trust among immigrants in Western Europe." *International Migration Review* 44(3):697–727.

Doney, Patricia M. and Joseph P. Cannon. 1997. "An examination of the nature of trust in buyer-seller relationships." *Journal of Marketing* 61(2):35–51.

Dyck, Joshua J. 2009. "Initiated Distrust. Direct Democracy and Trust in Government." *American Political Research* 37(4):539–568.

Dyck, Joshua J. and Edward L. Lascher Jr. 2009. "Direct Democracy and Political Efficacy Reconsidered." *Political Behavior* 31(3):401–427.

Dyck, Joshua J. and Nicholas R. Seabrook. 2010. "Mobilized by Direct Democracy: Short-Term Versus Long-Term Effects and the Geography of Turnout in Ballot Measure Elections." *Social Science Quarterly* 91(1):188–208.

Easton, David. 1965. *A framework for political analysis.* Englewood Cliffs, NJ: Prentice-Hall.

Eder, Christina. 2010. *Direkte Demokratie auf subnationaler Ebene. Eine vergleichende Analyse der unmittelbaren Volksrechte in den deutschen Bundesländern, den Schweizer Kantonen und den US-Bundesstaaten.* Baden-Baden: Nomos.

Eder, Christina, Adrian Vatter and Markus Freitag. 2009. "Institutional Design and the Use of Direct Democracy: Evidence from the German Länder." *West European Politics* 32(3):611–633.

Eisenstadt, Shmuel Noah and Luis Roniger. 1984. *Patrons, clients and friends: Interpersonal relations and the structure of trust in society.* Cambridge: Cambridge University Press.

Elazar, Daniel J. 1966. *American Federalism. A View from the States.* New York: Crowell.

Entorf, Horst and Hannes Spengler. 2002. *Crime in Europe: causes and consequences.* Heidelberg: Springer.

Erikson, Erik H. 1959. Growth and crisis of the healthy personality. In *Psychological Issues, Vol. 1, Identity and the Life Cycle*, ed. Erik H. Erikson. New York: International Universities Press.

Erikson, Erik H. 1968. *Identity: Youth and crisis.* New York: Norton.

Ermisch, John and Diego Gambetta. 2006. "People's trust: the design of a survey-based experiment." *IZA Discussion Papers* 2216:1–42.

Ermisch, John and Diego Gambetta. 2010. "Do strong family ties inhibit trust?" *Journal of Economic Behavior & Organization* 75(3):365–376.

Ermisch, John and Diego Gambetta. 2011. "The Long Shadow of Income on Trustworthiness." *Sociology Working Papers* 3:1–35.

Ermisch, John, Diego Gambetta, Heather Laurie, Thomas Siedler and S. C. Noah Uhrig. 2009. "Measuring people's trust." *Journal of the Royal Statistical Society* 172(4):749–769.

European Social Survey. 2012. *ESS Round 6 Source Questionnaire.* London: Centre for Comparative Social Surveys, City University London.

Farrell, Graham, Coretta Phillips and Ken Pease. 1995. "Like taking candy-why does repeat victimization occur." *British Journal of Criminology* 35(3):384.

Fatke, Matthias and Markus Freitag. 2013. "Direct Democracy: Protest Catalyst or Protest Alternative?" *Political Behavior* 35(2):237–260.

Fazio, R. H. and M. A. Olson. 2003. "Implicit measures in social cognition research: Their meaning and use." *Annual Review of Psychology* 54:297–327.

Fehr, Ernst, Urs Fischbacher, Bernhard von Rosenbladt, Jürgen Schupp and Gert G. Wagner. 2003. "A Nation-Wide Laboratory: Examining Trust and Trustworthiness by Integrating Behavioral Experiments into Representative Surveys." *IZA Discussion paper series* 715:1–23.

Fischer, Constance T. 1984. "A phenomenological study of being criminally victimized: Contributions and constraints of qualitative research." *Journal of Social Issues* 40(1):161–177.

Fischer, Justina A.V. 2009. "Development of Direct Democracy in Swiss Cantons between 1997 and 2003." *Munich Personal RePEc Archive Paper* 16140:1–88.

Fisher, Justin, Jennifer van Heerde and Andrew Tucker. 2010. "Does one trust judgement fit all? Linking theory and empirics." *British Journal of Politics and International Relations* 12(2):161–188.

Fisher, Justin, Jennifer van Heerde-Hudson and Andrew Tucker. 2011. "Why Both Theory and Empirics Suggest There is More than One Form of Trust: A Response to Hooghe." *British Journal of Politics and International Relations* 13(2):276–281.

Foweraker, Joe and Todd Landman. 1997. *Citizenship Rights and Social Movements. A Comparative and Statistical Analysis*. Oxford: Oxford University Press.

Freitag, Markus. 2001. "Das soziale Kapital der Schweiz: vergleichende Einschätzungen zu Aspekten des Vertrauens und der sozialen Einbindung." *Swiss Political Science Review* 7(4):87–117.

Freitag, Markus and Adrian Vatter. 2000. "Direkte Demokratie, Konkordanz und Wirtschaftsleistung. Ein Vergleich der Schweizer Kantone." *Schweizerische Zeitschrift für Volkswirtschaft und Statistik* 136(4):579–606.

Freitag, Markus and Isabelle Stadelmann-Steffen. 2008. Schweizer Welten der Freiwilligkeit: das freiwillige Engagement der Schweiz im sprachregionalen Kontext. In *Sozialbericht 2008*, ed. Christian Suter, Silvia Perrenoud, René Levy, Ursina Kuhn, Dominique Joye and Pascale Gazareth. Zürich: Seismo pp. 170–190.

Freitag, Markus and Isabelle Stadelmann-Steffen. 2010. "Stumbling Block or Stepping Stone? The Influence of Direct Democracy on Individual Participation in Parliamentary Elections." *Electoral Studies* 29(3):472–483.

Freitag, Markus and Paul C. Bauer. 2013. "Testing for measurement equivalence in surveys: Dimensions of Social Trust across Cultural Contexts." *Public Opinion Quarterly* 77 (S1):24–44.

Freitag, Markus and Paul C. Bauer. 2015. "Personality and the Foundations of Social Trust." Unpublished Working Paper.

Freitag, Markus and Richard Traunmüller. 2009. "Spheres of trust: An empirical analysis of the foundations of particularised and generalised trust." *European Journal of*

*Political Research* 48:782–803.

Fukuyama, Francis. 1995. *Trust: the social virtues and the creation of prosperity.* New York: Free Press.

Fukuyama, Francis. 2001. "Social capital, civil society and development." *Third World Quarterly* 22(1):7–20.

Gambetta, Diego. 1988. Can We Trust Trust? In *Trust: Making and Breaking Cooperative Relations*, ed. Diego Gambetta. Cambridge, Massachusetts: Basil Blackwell pp. 213–237.

Gambetta, Diego. 1990. *Trust: Making and breaking cooperative relations.* Cambridge, Massachusetts: Blackwell Publishers.

Gambetta, Diego. 2006. Trust's odd ways. In *Understanding Choice, Explaining Behavior: Essays in Honour of Ole-Jorgen Skog*, ed. Jon Elster, Olav Gjelsvik, Aanund Hylland and Karl Moene. Oslo Academic Press pp. 81–100.

Gambetta, Diego and Heather Hamill. 2005. *Streetwise: how taxi drivers establish their customers' trustworthiness.* New York: Russell Sage Foundation.

Gamson, William A. 1968. *Power and discontent.* Homewood, IL: Dorsey Press.

Gelman, Andrew and Jennifer Hill. 2007. *Data Analysis using Regression and Multilevel/Hierarchical Models.* Cambridge: Cambridge University Press.

Gerber, Elisabeth R., Arthur Lupia, Mathew McCubbins and Roderick Kiewiet. 2001. *Stealing the Initiative: How State Government Responds to Direct Democracy.* Upper Saddle River: Prentice Hall.

Geser, Hans. 1999. Die Gemeinden in der schweiz. In *Handbuch der Schweizer Politik*, ed. Ulrich Klöti, Peter Knöpfel, Hanspeter Kriesi and Wolf Linder. Zürich: NZZ Verlag pp. 421–468.

Giddens, Anthony. 1991. *Modernity and self-identity: Self and society in the late modern age.* Camebridge: Polity Press.

Glaeser, Edward L., David I. Laibson, Jose A. Scheinkman and Christine L. Soutter. 2000. "Measuring Trust." *Quarterly Journal of Economics* 115(3):811–846.

Glanville, Jennifer L., Matthew A. Andersson and Pamela Paxton. 2013. "Do Social Connections Create Trust? An Examination Using New Longitudinal Data." *Social Forces* 92(2):545–562.

Glanville, Jennifer L. and Pamela Paxton. 2007. "How do we learn to trust? A confirmatory tetrad analysis of the sources of generalized trust." *Social Psychology Quarterly* 70(3):230–242.

Goertz, Gary. 2006. *Social science concepts: A user's guide.* Princeton: Princeton University Press.

Gottfredson, Michael R. 1984. *Victims of crime: The dimensions of risk. Home Office Research Study no. 81.* London: Home Office Stationery Office.

Hall, Peter A. 1986. *Governing the Economy: The Politics of State Intervention in Britain and France.* New York: Oxford University Press.

Hardin, Russell. 1992. "The Street-Level Epistemology of Trust." *Analyse & Kritik* 14:152–176.

Hardin, Russell. 2002. *Trust and Trustworthiness.* New York: Russell Sage Foundation.

Hardin, Russell. 2006. *Trust.* Cambridge: Polity.

Harrison, Lawrence E. 2000. *Underdevelopment is a state of mind: The Latin American case.* New York: Madison Books.

Herreros, Francisco. 2004. *The Problem Of Forming Social Capital. Why Trust?* New York: Palgrave Macmillan.

Hetherington, Marc J. 1998. "The Political Relevance of Political Trust." *American Political Science Review* 92(4):791–808.

Hetherington, Marc J. and Jason A. Husser. 2012. "How Trust Matters: The Changing Political Relevance of Political Trust." *American Journal of Political Science* 56(2):312–325.

Hibbing, John R. and Elizabeth Theiss-Morse. 1995. *Congress as Public Enemy. Public Attitudes towards American Political Institutions.* Cambridge: Cambridge University Press.

Hindelang, Michael J., Michael R. Gottfredson and James Garofalo. 1978. *Victims of personal crime: An empirical foundation for a theory of personal victimization.* Cambridge, MA: Ballinger.

Hofer, Sebastian. 2014. "Teilen statt kaufen: So klappt's auch mit dem Nachbarn." *Spiegel Online* 09.09.2014.

Hoffman, Aaron M. 2002. "A conceptualization of trust in international relations." *European Journal of International Relations* 8(3):375–401.

Holland, Paul W. 1986. "Statistics and causal inference." *Journal of the American statistical Association* 81(396):945–960.

Hooghe, Marc. 2011. "Why There is Basically Only One Form of Political Trust." *British Journal of Politics and International Relations* 13(2):269–275.

Hosmer, Larue T. 1995. "Trust: The connecting link between organizational theory and philosophical ethics." *Academy of management Review* 20(2):379–403.

Hu, Li-tze and Peter Bentler. 1999. "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives." *Structural Equation Modeling* 6(1):1–55.

Huckfeldt, Robert, Eric Plutzer and John Sprague. 1993. "Alternative Contexts of Political Behavior: Churches, Neighborhoods, and Individuals." *Journal of Politics* 55(2):365–381.

Hug, Simon. 2004. "Occurrence and Policy Consequences of Referendums A Theoretical Model and Empirical Evidence." *Journal of Theoretical Politics* 16(3):321–356.

Hug, Simon. 2005. "The Political Effects of Referendums: an Analysis of Institutional Innovations in Eastern and Central Europe." *Communist and Post-Communist Studies* 38(4):475–499.

Hug, Simon and George Tsebelis. 2002. "Veto Players and Referendums Around the World." *Journal of Theoretical Politics* 14(4):465–515.

Imai, Kosuke. 2011. "Introduction to the Virtual Issue: Past and Future Research Agenda on Causal Inference." *Political Analysis Virtual Issue* 2:1–4.

Immergut, Ellen M. 1998. "The Theoretical Core of the New Institutionalism." *Politics & Society* 26(1):5–34.

Ingen, Erik and René Bekkers. 2013. "Generalized Trust Through Civic Engagement? Evidence from Five National Panel Studies." *Political Psychology* Online First:1–80.

Inglehart, Ronald. 1997. *Modernization and Postmodernization: Cultural, Economic and Political Change in 43 Societies.* Princeton: Princeton University Press.

Inglehart, Ronald. 2000. Culture and Democracy. In *Culture Matters: How Values Shape Human Progress*, ed. Lawrence E. Harrison and Samuel Huntington. New York: Basic Books pp. 80–97.

Janoff-Bulman, Ronnie and Irene Hanson Frieze. 1983. "A Theoretical Perspective for Understanding Reactions to Victimization." *Journal of Social Issues* 39(2):1–17.

Johnson, Noel D. and Alexandra A. Mislin. 2011. "Trust games: A meta-analysis." *Journal of Economic Psychology* 32(5):865–889.

Jones, Karen. 1996. "Trust as an affective attitude." *Ethics* 107(1):4–25.

Kaiser, André. 1997. "Types of Democracy. From Classical to New Institutionalism." *Journal of Theoretical Politics* 9(4):419–444.

Kirchgaessner, Gebhard, Lars P. Feld and Marcel R. Savioz. 1999. *Die direkte Demokratie: modern, erfolgreich, entwicklungs- und exportfaehig.* Basel: Helbing &

Lichtenhahn.

Klapper, Joseph T. 1955. "American Attitudes on Civil Liberties." *Public Opinion Quarterly* 19(4):435–438.

Kramer, Roderick M. 1999. "Trust and Distrust in Organizations: Emerging Perspectives, Enduring Questions." *Annual Review of Psychology* 50:569–598.

Kriesi, Hanspeter. 1998. *Le système politique Suisse*. 2nd ed. Paris: Economica.

Kriesi, Hanspeter, Boris Wernli, Pascal Sciarini and Matteo Gianni. 1996. *Le clivage linguistique: problèmes de compréhension entre les communautés linguistiques en Suisse*. Bundesamt für Statistik.

Kumlin, Staffan and Bo Rothstein. 2010. "Questioning the new liberal dilemma: Immigrants, social networks, and institutional fairness." *Comparative Politics* 43(1):63–80.

Kymlicka, Will. 2003. "Multicultural states and intercultural citizens." *Theory and research in education* 1(2):147–169.

Ladner, Andreas. 2002. "Size and Direct Democracy at the Local Level: The Case of Switzerland." *Environment and Planning C: Government and Policy* 20(6):813–828.

Lagace, Rosemary R. and Jule B. Gassenheimer. 1989. "A measure of global trust and suspicion: Replication." *Psychological Reports* 65(2):473–474.

Legewie, Joscha. 2012. "Die Schätzung von Kausalen Effekten: Überlegungen zu Methoden der Kausalanalyse anhand von Kontexteffekten in der Schule." *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 64:123–153.

Lejeune, Robert and Nicholas Alex. 1973. "On being mugged: The event and its aftermath." *Urban Life and Culture* 2(3):259–287.

Levi, Margaret and Laura Stoker. 2000. "Political Trust and Trustworthiness." *Annual Review of Political Science* 3(1):475–507.

Lewicki, Roy J and Barbara B. Bunker. 1995. Trust in relationships: A model of development and decline. In *Conflict, cooperation, and justice: Essays inspired by the work of Morton Deutsch*, ed. Barbara B. Bunker and Jeffrey Z. Rubin. San Francisco, CA: Jossey-Bass.

Lewicki, Roy J. and Chad Brinsfield. 2012. Measuring trust beliefs and behaviours. In *Handbook of research methods on trust*, ed. Fergus Lyon, Guido Mollering and Mark N. K. Saunders. Edward Elgar Publishing pp. 29–39.

Li, Yaojun, Andrew Pickles and Mike Savage. 2005. "Social capital and social trust in Britain." *European Sociological Review* 21(2):109–123.

Linder, Wolf. 1994. *Swiss democracy: Possible solutions to conflict in multicultural societies*. Gordonsville, Virginia: Palgrave Macmillan.

Lipps, Oliver. 2007. "Attrition in the Swiss household panel." *Methoden-Daten-Analysen* 1(1):45–68.

Luhmann, Niklas. 1979. *Trust and Power*. Chichester: Wiley.

Luhmann, Niklas. 1980. Trust: A Mechanism for the Reduction of Social Complexity. In *Trust and Power*. New York: Wiley.

Luhmann, Niklas. 1988. Familiarity, Confidence, Trust: Problems and Alternatives. In *Trust: Making and Breaking Cooperative Relations*, ed. Diego Gambetta. Cambridge, Massachusetts: Basil Blackwell pp. 94–107.

Lutz, Georg. 2008. *Eidgenössische Wahlen 2007. Wahlteilnahme und Wahlentscheid*. Lausanne: Selects-FORS.

Macmillan, Ross. 2001. "Violence and the Life Course: The Consequences of Victimization for Personal and Social Development." *Annual Review of Sociology* 27:1–22.

Marien, Sofie and Marc Hooghe. 2011. "Does Political Trust Matter? An Empirical Investigation into the Relation between Political Trust and Support for Law Compliance." *European Journal of Political Research* 50(2):267–291.

Marschall, M. J. and D. Stolle. 2004. "Race and the City: Neighborhood Context and the Development of Generalized Trust." *Political Behavior* 26(2):125–153.

Marsh, Herbert W., Kit-Tai Hau and Zhonglin Wen. 2004. "In Search of Golden Rules: Comment on Hypothesis-Testing Approaches to Setting Cutoff Values for Fit Indexes and Dangers in Overgeneralizing Hu and Bentler's (1999) Findings." *Structural Equation Modeling* 11(3):320–341.

Mayer, Roger C., James H. Davis and F. David Schoorman. 1995. "An Integrative Model of Organizational Trust." *The Academy of Management Review* 20(3):709–734.

Mayntz, Renate and Fritz W. Scharpf. 1995. Der Ansatz des akteurszentrierten Institutionalismus. In *Gesellschaftliche Selbstregelung und politische Steuerung*, ed. Renate Mayntz and Fritz W. Scharpf. Frankfurt: Campus pp. 39–72.

McCann, I. Lisa, David K. Sakheim and Daniel J. Abrahamson. 1988. "Trauma and Victimization: A Model of Psychological Adaptation." *The Counseling Psychologist* 16(4):531–594.

McCrae, Robert R. and Paul T. Costa Jr. 2003. *Personality in adulthood: A five-factor theory perspective*. New York: The Guilford Press.

McKnight, D. Harrison and Norman L. Chervany. 1996. "The Meanings of trust." Unpublished Working Paper.

Mechanic, David and Mark Schlesinger. 1996. "The impact of managed care on patients' trust in medical care and their physicians." *JAMA: The journal of the American Med-*

*ical Association* 275(21):1693–1697.

Meier-Dallach, Hans-Peter. 1991. *Die helvetische Kulturlandschaft im Test.* Bern: Bundesamt für Kultur und Statistik.

Mendelsohn, Matthew and Fred Cutler. 2000. "The Effect of Referendums on Democratic Citizens: Information, Politicization, Efficacy and Tolerance." *British Journal of Political Science* 30(4):669–698.

Meredith, William. 1993. "Measurement invariance, factor analysis and factorial invariance." *Psychometrika* 58(4):525–543.

Meuleman, Bart and Jaak Billiet. 2006. "Quality and comparability of measures in the ESS: attitudes toward migration and immigrants." Presentation at the SMABS Conference, Budapest.

Mewes, Jan. 2014. "Gen(d)eralized Trust: Women, Work, and Trust in Strangers." *European Sociological Review* 30(3):373–386.

Michel, Jean-Baptiste, Yuan Kui Shen, Aviva Presser Aiden, Adrian Veres, Matthew K Gray, Joseph P Pickett, Dale Hoiberg, Dan Clancy, Peter Norvig, Jon Orwant et al. 2011. "Quantitative analysis of culture using millions of digitized books." *Science* 331(6014):176–182.

Michel, Torsten. 2013. "Time to get emotional: Phronetic reflections on the concept of trust in International Relations." *European Journal of International Relations* 19(4):869–890.

Milbrath, Lester W. 1965. *Political Participation: How and Why Do People Get Involved in Politics?* Chicago: Rand McNally.

Miller, Alan S. and Tomoko Mitamura. 2003. "Are Surveys on Trust Trustworthy?" *Social Psychology Quarterly* 66(1):62–70.

Miller, Arthur H. 1974. "Political Issues and Trust in Government: 1964-1970." *American Political Science Review* 68(3):951–972.

Mishler, William and Richard Rose. 2001. "What Are the Origins of Political Trust? Testing Institutional and Cultural Theories in Post-communist Societies." *Comparative Political Studies* 34(1):1050–1078.

Mishra, Aneil K. 1996. Organizational responses to crisis: The centrality of trust. In *Trust In Organizations*, ed. Roderick M. Kramer and Thomas Tyler. Newbury Park, CA: Sage.

Misztal, Barbara. 1996. *Trust in modern societies: The search for the bases of social order.* Cambridge: Polity Press.

Mooradian, Todd, Birgit Renzl and Kurt Matzler. 2006. "Who trusts? Personality, trust and knowledge sharing." *Management Learning* 37(4):523–540.

Morgan, Stephen L and Christopher Winship. 2007. *Counterfactuals and causal inference: Methods and principles for social research.* Cambridge, United Kingdom: Cambridge University Press.

Nannestad, Peter. 2008. "What Have We Learned About Generalized Trust, If Anything?" *Annual Review of Political Science* 11:413–436.

Newton, Ken and Sonja Zmerli. 2011. "Three Forms of Trust and Their Association." *European Political Science Review* 3(2):169–200.

Newton, Kenneth. 2001. "Trust, Social Capital, Civil Society, and Democracy." *International Political Science Review* 22(2):201–214.

Nooteboom, Bart. 2002. *Trust: Forms, Foundations, Functions, Failures and Figures.* Cheltenham: Edwar Elgar.

Norris, Pippa. 2011. *Democratic Deficit. Critical Citizens Revisited.* New York: Cambridge University Press.

Oberski, Daniel. 2009. "JRule for Mplus version 0.91 (beta)." Available under https://github.com/daob/JruleMplus/wiki.

Offe, Claus. 1999. How can we trust our fellow citizens? In *Democracy and trust*, ed. Mark E. Warren. Cambridge: Cambridge University Press pp. 42–87.

Offe, Claus. 2006. Political Disaffection as an Outcome of Institutions. In *Political Disaffection in Contemporary Democracies: Social Capital, Institutions and Politics*, ed. Mariano Torcal and José Ramón Montero. London: Routledge pp. 23–45.

Office of Public Opinion Research. 1942. *Survey 813: War.* University of Connecticut: The Roper Center for Public Opinion.

Omodei, Mary M. and Jim McLennan. 2000. "Conceptualizing and Measuring Global Interpersonal Mistrust-Trust." *The Journal of Social Psychology* 140(3):279–294.

Oskarsson, Sven, Christopher Dawes, Magnus Johannesson and Patrik K. E. Magnusson. 2012. "The genetic origins of the relationship between psychological traits and social trust." *Twin Research and Human Genetics* 15(1):21–33.

Oskarsson, Sven, Torsten Svensson and PerOla Öberg. 2009. "Power, Trust, and Institutional Constraints: Individual-Level Evidence." *Rationality and Society* 21(2):171–195.

Papadopoulos, Yannis. 2001. "How Does Direct Democracy Matter? The Impact of Referendum Votes on Politics and Policy-Making." *West European Politics* 24(2):35–58.

Pichler, Florian and Claire Wallace. 2007. "Patterns of Formal and Informal Social Capital in Europe." *European Sociological Review* 23(4):423–445.

Polvi, Natalie, Terah Looman, Charlie Humphries and Ken Pease. 1991. "The time course of repeat burglary victimization." *British Journal of Criminology* 31(4):411–414.

Poznyak, Dmitriy, Bart Meuleman, Koen Abts and George F. Bishop. 2013. "Trust in American Government: Longitudinal Measurement Equivalence in the ANES, 1964-2008." *Social Indicators Research* 118(2):1–18.

Putnam, Robert D. 1993. *Making Democracy Work: Civic Traditions in Modern Italy.* Princeton, New Jersey: Princeton University Press.

Putnam, Robert David. 2000. *Bowling alone: The collapse and revival of American community.* New York: Simon & Schuster.

Rahn, Wendy M. and Thomas J. Rudolph. 2005. "A Tale of Political Trust in American Cities." *Public Opinion Quarterly* 69(4):530–560.

Rathbun, Brian C. 2011. "Before Hegemony: Generalized Trust and the Creation and Design of International Security Organizations." *International Organization* 65:243–273.

Rawls, John. 1971. *A Theory of Justice.* Cambridge, Massachusetts: Harvard University Press.

Reeskens, Tim and Marc Hooghe. 2008. "Cross-cultural measurement equivalence of generalized trust. Evidence from the European Social Survey (2002 and 2004)." *Social Indicators Research* 85:515–532.

Richardson, Lilliard E., David Houston and Chris S. Hadjiharalambous. 2001. Public Confidence in the Leaders of American Governmental Institutions. In *What is it About Government that Americans Dislike?*, ed. John R. Hibbing and Elizabeth Theiss-Morse. Cambridge: Cambridge University Press pp. 83–97.

Roberts, Mary Roduta, Grace Reid, Meadow Schroeder and Stephen P. Norris. 2013. "Causal or spurious? The relationship of knowledge and attitudes to trust in science and technology." *Public Understanding of Science* 22(5):624–641.

Robinson, Robert V and Elton F Jackson. 2001. "Is trust in others declining in America? An age-period-cohort analysis." *Social Science Research* 30(1):117–145.

Rosenberg, Morris. 1956. "Misanthropy and political ideology." *American sociological review* 21(6):690–695.

Ross, Catherine E., John Mirowsky and Shana Pribesh. 2001. "Powerlessness and the amplification of threat: Neighborhood disadvantage, disorder, and mistrust." *American sociological review* 66(4):568–591.

Rothstein, Bo. 2005. *Social traps and the problem of trust.* New York: Cambridge University Press.

Rotter, Julian B. 1967. "A new scale for the measurement of interpersonal trust." *Journal of Personality* 35(4):651–665.

Rotter, Julian B. 1980. "Interpersonal trust, trustworthiness, and gullibility." *American psychologist* 35(1):1.

Rotter, Julian B. and Donald K. Stein. 1971. "Public Attitudes Toward the Trustworthiness, Competence, and Altruism of Twenty Selected Occupations." *Journal of Applied Social Psychology* 1(4):334–343.

Rubin, Donald B. 1974. "Estimating causal effects of treatments in randomized and nonrandomized studies." *Journal of educational Psychology* 66(5):688.

Salmi, Venla, Mirka Smolej and Janne Kivivuori. 2007. "Crime victimization, exposure to crime news and social trust among adolescents." *Young* 15(3):255–272.

Saris, Willem E., Albert Satorra and William van der Veld. 2009. "Testing Structural Equation Models or Detection of Misspecifications?" *Structural Equation Modeling* 16(4):561–582.

Satorra, Albert and Peter M. Bentler. 2001. "A scaled difference chi-square test statistic for moment structure analysis." *Psychometrika* 66(4):507–514.

Scarrow, Susan E. 2001. "Direct Democracy and Institutional Change A Comparative Investigation." *Comparative Political Studies* 34(6):651–665.

Schaap, Dorian and Peer Scheepers. 2014. "Comparing Citizens' Trust in the Police Across European Countries An Assessment of Cross-Country Measurement Equivalence." *International Criminal Justice Review* 24(1):82–98.

Scheidegger, Régis and Christian Staerklé. 2011. "Political Trust and Distrust in Switzerland: A Normative Analysis." *Swiss Political Science Review* 17(2):164–187.

Schelling, Thomas C. 1980. *The strategy of conflict.* Cambridge, MA: Harvard university press.

Schlozman, Daniel and Ian Yohai. 2008. "How Initiatives Don't Always Make Citizens: Ballot Initiatives in the American States, 1978-2004." *Political Behavior* 30(4):469–489.

Schmitter, Philippe C. and Alexander H. Trechsel. 2004. *The Future of Democracy in Europe: Trends, Analyses and Reforms.* Strasbourg: Council of Europe Publishing.

Sekhon, Jasjeet S. 2011. "Multivariate and Propensity Score Matching Software with Automated Balance Optimization: The Matching package for R." *Journal of Statistical Software* 42(7):1–52.

Seligman, Adam B. 1997. *The Problem of Trust.* Princeton, New Jersey: Princeton University Press.

Seyd, Ben. 2011. "An Expectations-Disconfirmation Model of Political Trust." Paper prepared for the Annual conference of the 'Elections, Public Opinion and Parties' sub-group.

Shapiro, Susan P. 1987. "The Social Control of Impersonal Trust." *American Journal of Sociology* 93(3):623–658.

Simmel, Georg. 1900. *Die Philosophie des Geldes.* Leipzig: Dunker & Humblot.

Simmel, Georg. 1908. *Soziologie - Untersuchung über Formen der Vergesellschaftung.* Leipzig: Dunker & Humblot.

Simmel, Georg. 1950. *The sociology of Georg Simmel.* Glencoe, Illinois: The Free Press.

Simmel, Georg. 2004. *The Philosophy of Money.* London: Routledge.

Sitkin, Sim B and Nancy L Roth. 1993. "Explaining the limited effectiveness of legalistic "remedies" for trust/distrust." *Organization science* 4(3):367–392.

Slovic, Paul. 1993. "Perceived risk, trust, and democracy." *Risk analysis* 13(6):675–682.

Smith, Daniel A. and Caroline J. Tolbert. 2004. *Educated by Initiative: the Effects of Direct Democracy on Citizens and Political Organizations in the American States.* Ann Arbor: University of Michigan Press.

Sønderskov, Kim Mannemar. 2011. "Does generalized social trust lead to associational membership? Unravelling a bowl of well-tossed spaghetti." *European Sociological Review* 27(4):419–434.

Sovey, Allison J. and Donald P. Green. 2011. "Instrumental Variables Estimation in Political Science: A Readers' Guide." *American Journal of Political Science* 55(1):188–200.

Sproule-Jones, Mark. 1993. *Governments at Work.* Toronto: University of Toronto Press.

Stack, Lois C. 1978. Trust. In *Dimensions of Personality*, ed. Harvey London and Jr. John E. Exner. New York: John Wiley & Sons. pp. 561–599.

Stadelmann-Steffen, Isabelle and Adrian Vatter. 2012. "Does Satisfaction with Democracy really Increase Happiness? Direct democracy and Individual Satisfaction in Switzerland." *Political Behavior* 34(3):535–559.

Steenbergen, Marco R. and Bradford S. Jones. 2002. "Modeling Multilevel Data Structures." *American Journal of Political Science* 46(1):218–237.

Steenkamp, Jan-Benedict E. M. and Hans Baumgartner. 1998. "Assessing Measurement Invariance in Cross-National Consumer Research." *Journal of Consumer Research*

25(1):78–90.

Steiner, Jürg. 2001. Switzerland and the European Union: A Puzzle. In *Minority Nationalism and the Changing International Order*, ed. Michael Keating and John McGarry. Oxford University Press pp. 137–54.

Stokes, Donald E. 1962. Popular evaluations of government: An empirical assessment. In *Ethics and Business: Scientific, Academic, Religious, Political and Military*, ed. H. Cleveland and H. Lasswell. New York: Harper and Brothers pp. 61–72.

Stolle, Dietlind. 2002. "Trusting strangers: The concept of generalized trust in perspective." *Österreichische Zeitschrift für Politikwissenschaft* 31:397–412.

Sturgis, Patrick and Patten Smith. 2010. "Assessing the validity of generalized trust questions: What kind of trust are we measuring?" *International Journal of Public Opinion Research* 22(1):74–92.

Sturgis, Patrick, Roger Patulny and Nick Allum. 2009. "Re-evaluating the individual level causes of trust: a panel data analysis." Working Paper.

Stutzer, Alois. 1999. "Demokratieindizes für die Kantone der Schweiz." *University of Zurich, Institute for Empirical Research in Economics Working Paper Series* 23:1–14.

Stutzer, Alois and Bruno S. Frey. 2000. "Stärkere Volksrechte - Zufriedenere Bürger: Eine mikroökonometrische Untersuchung für die Schweiz." *Swiss Political Science Review* 6(3):1–30.

Sumner, William Graham. 1906. *Folkways*. Boston: Ginn.

Sztompka, Piotr. 1999. *Trust: A Sociological Theory*. Cambridge, United Kingdom: Cambridge University Press.

Tajfel, Henri. 1974. "Social identity and intergroup behaviour." *Social Science Information* 13(2):65–93.

Tajfel, Henri and John C. Turner. 1979. An Integrative Theory of Intergroup Conflict. In *The Social Psychology of Intergroup Relations*, ed. William G. Austin and Stephen Worchel. Pacific Grove, CA: Brooks/Cole pp. 33–48.

Tao, Ran, Dali L Yang, Ming Li and Xi Lu. 2014. "How does political trust affect social trust? An analysis of survey data from rural China using an instrumental variables approach." *International Political Science Review* 35(2):237–253.

Tolbert, Caroline J. and Daniel A. Smith. 2005. "The Educative Effects of Ballot Initiatives on Voter Turnout." *American Politics Research* 33(2):283–309.

Tolbert, Caroline J. and Daniel C. Bowen. 2008. Direct Democracy, Engagement, and Voter Turnout. In *Democracy in the States: Experiments in Election Reform*, ed. Bruce E. Cain, Todd Donovan and Caroline J. Tolbert. Washington, D.C.: Brook-

ings Institution Press pp. 99–116.

Tolbert, Caroline J., John A. Grummel and Daniel A. Smith. 2001. "The Effects of Ballot Initiatives on Voter Turnout in the American States." *American Politics Research* 29(6):625–648.

Tolbert, Caroline J., Ramona S. McNeal and Daniel A. Smith. 2003. "Enhancing Civic Engagement: The Effect of Direct Democracy on Political Participation and Knowledge." *State Politics & Policy Quarterly* 3(1):23–41.

Torpe, Lars and Henrik Lolle. 2011. "Identifying social trust in cross-country analysis: do we really measure the same?" *Social Indicators Research* 103(3):481–500.

Traunmüller, Richard. 2011. "Moral communities? Religion as a source of social trust in a multilevel analysis of 97 German regions." *European Sociological Review* 27(3):346–363.

Trechsel, Alexander H. 2000. *Feuerwerk Volksrechte: die Volksabstimmungen in den schweizerischen Kantonen 1970-1996*. Basel: Helbing & Lichtenhahn.

Tseloni, Andromachi and Ken Pease. 2004. "Repeat Personal Victimization Random Effects, Event Dependence and Unexplained Heterogeneity." *British Journal of Criminology* 44(6):931–945.

Tyler, Tom R. and Yuen J. Huo. 2002. *Trust in the law: Encouraging public cooperation with the police and courts*. New York: Russell Sage Foundation.

Uslaner, Eric M. 1999. Democracy and trust. In *Democracy and social capital*, ed. Mark Warren. Cambridge University Press Cambridge pp. 121–150.

Uslaner, Eric M. 2002. *The Moral Foundations of Trust*. Cambridge, United Kingdom: Cambridge University Press.

Uslaner, Eric M. 2008*a*. "The foundations of trust: macro and micro." *Cambridge Journal of Economics* 32(2):289–294.

Uslaner, Eric M. 2008*b*. Trust and Consequences. In *Social Capital. Vol. 2*, ed. K R Gupta, Gunnar Lind Haase Svendsen and Prasenjit Maiti. New Delhi: Atlantic pp. 58–87.

Uslaner, Eric M. 2012. Measuring generalized trust: in defense of the 'standard' question. In *Handbook of research methods on trust*, ed. Fergus Lyon, Guido Mollering and Mark N. K. Saunders. Edward Elgar Publishing pp. 72–82.

van der Meer, Tom and Paul Dekker. 2011. Trustworthy States, Trusting Citizens? A Multilevel Study into Objective and Subjective Determinants of Political Trust. In *Political Trust. Why Context Matters*, ed. Sonja Zmerli and Marc Hooghe. Colchester: ECPR Press pp. 95–116.

van der Veld, William M. and Willem E. Saris. 2011. Causes of Generalized Social Trust: An Innovative Cross-National Evaluation. In *Cross-Cultural Analysis: Methods and*

*Applications*, ed. Eldad Davidov, Peter Schmidt and Jaak Billiet. Taylor & Francis pp. 207–247.

van Hoorn, André. 2014. "Trust Radius versus Trust Level Radius of Trust as a Distinct Trust Construct." *American Sociological Review* 79(6):1256–1259.

Van Lange, Paul AM, Anna AE Vinkhuyzen and Danielle Posthuma. 2014. "Genetic Influences Are Virtually Absent for Trust." *PloS one* 9(4):e93880.

van Miltenburg, Nynke, Vincent Buskens and Werner Raub. 2012. "Trust in triads: Experience effects." *Social Networks* 34(4):425–428.

Vatter, Adrian. 2002. *Kantonale Demokratien im Vergleich*. Opladen: Leske + Budrich.

Verbrugge, Lois M. and Ralph B. Taylor. 1980. "Consequences of Population Density and Size." *Urban Affairs Review* 16(2):135–160.

Walsh, Warren B. 1944. "What the American people think of Russia." *Public Opinion Quarterly* 8(4):513–522.

Weber, Max. 2005. *The Protestant Ethic and the Spirit of Capitalism*. London: Routledge.

Whiteley, Paul F. 2000. "Economic growth and social capital." *Political Studies* 48:443–466.

Wilcox, Pamela. 2010. Theories of Victimization. In *Encyclopedia of victimology and crime prevention*, ed. Bonnie S. Fisher and Steven P. Lab. Thousand Oaks: Sage Publications pp. 978–986.

Wilson, James Q. 1993. *The Moral Sense*. New York: Free Press.

Wooldridge, Jeffrey M. 2010. *Econometric analysis of cross section and panel data*. Cambridge, MA: MIT press.

Wrightsman, Lawrence S. 1992. *Assumptions about human nature: Implications for researchers and practitioners*. Newbury Park, CA: Sage.

Wrightsman, Lawrence S. and M. Leslie Wuescher. 1974. *Assumptions about human nature: A social psychological approach*. Monterey, CA: Brooks/Cole.

Yamagishi, Toshio and Midori Yamagishi. 1994. "Trust and commitment in the United States and Japan." *Motivation and Emotion* 18(2):129–166.

Yosano, Arinori and Nahoko Hayashi. 2005. "Social Stratification, Internediary Groups and Creation of Trustfulness." *Sociological Theory and Methods* 20(1):27–44.

Yu, Ching-Yu. 2002. Evaluating Cutoff Criteria of Model Fit Indices for Latent Variable Models with Binary and Continuous Outcomes. PhD thesis at the University of California.

Yuki, Masaki, William W. Maddux, Marilynn B. Brewer and Kosuke Takemura. 2005. "Cross-cultural differences in relationship- and group-based trust." *Personality and Social Psychology Bulletin* 31(1):48–62.

Zmerli, Sonja, Kenneth Newton and José Ramón Montero. 2007. Trust in people, confidence in political institutions, and satisfaction with democracy. In *Citizenship and Involvement among the Populations of European Democracies: A Comparative Analysis*, ed. Jan W. van Deth, José Ramón Montero and Anders Westholm. London, New York: Routledge pp. 35–65.

Zmerli, Sonja and Marc Hooghe, eds. 2011. *Political Trust. Why Context Matters*. Colchester: ECPR Press.