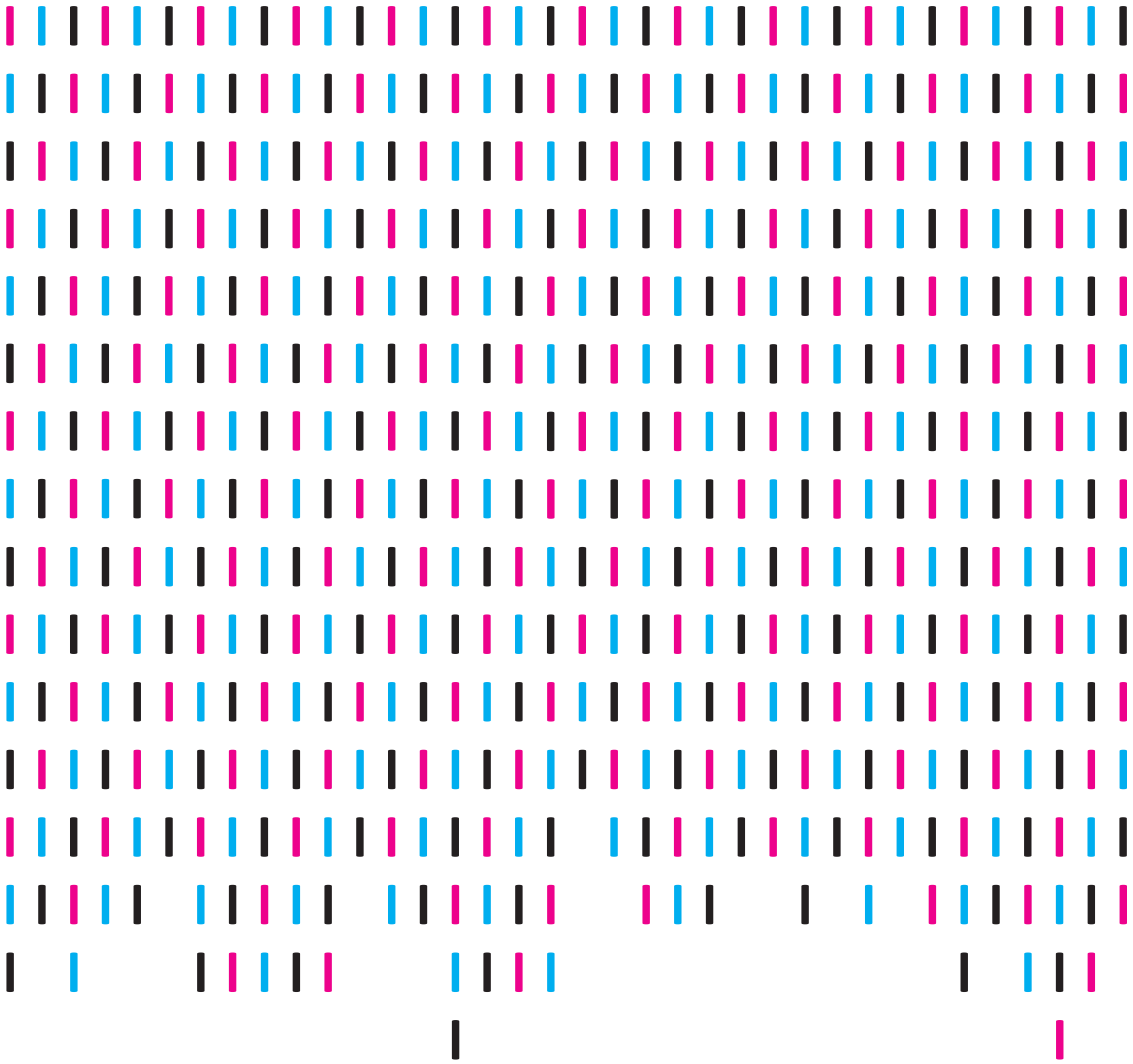

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Regina Jusri

WHO TRUSTS AND WHO VOLUNTEERS? THE ROLE OF EDUCATIONAL ATTAINMENT, READING COMPETENCIES, AND NONVERBAL COGNITIVE BASIC SKILLS

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Who trusts and who volunteers? The role of educational attainment, reading competencies, and nonverbal cognitive basic skills

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Who trusts and who volunteers? The role of educational attainment, reading competencies, and nonverbal cognitive basic skills

Abstract

Trust in other people (social trust) and participation in volunteer work are important catalyzers of social capital, and many researchers claim that they are beneficial for the state and society. There is considerable evidence that educational attainment is one of the most important determinants of social trust and volunteering in adult life. Nevertheless, relatively little is known about the underlying mechanisms. Some researchers assume that formal education may foster trust and volunteering directly by teaching values or a sense of civic obligation. In contrast, others claim that the impact of educational attainment on trust and volunteering is mediated by cognitive skills and competencies. This paper aims to find out what role formal educational attainment (educational certificates), cognitive skills, and competencies play for social trust and volunteering in adulthood. To address this research question, I estimated linear and logistic regression models based on the adult cohort of the German National Educational Panel Study (NEPS-SC6). The results illustrate that the relations between educational attainment and social trust and volunteering respectively are mainly indirect. More highly educated individuals show higher levels of social trust and volunteer more often than less well educated individuals because they possess better reading competencies and nonverbal cognitive basic skills. Additionally, they possess resources—e.g., lower unemployment risk—that facilitate social trust and volunteering.

Keywords

Social trust, volunteering, social participation, educational attainment, skills

1. Introduction

Many researchers have claimed that social trust and participation in volunteering activities are crucial for democratic societies (Flanagan & Stout, 2010; Offe & Fuchs, 2002). Trust and volunteering are important catalyzers of social capital (Putnam, 1995; Welch et al., 2005). According to Putnam (2001), social capital enables members of formal and informal networks to cooperate effectively in pursuit of shared goals. Trust reduces complexity and social uncertainty (Luhmann, 2014). It also operates as a "social lubricant" (Yamagishi & Yamagishi, 1994, p. 136), facilitating cooperation with strangers and making solidarity and altruism possible (Welch et al., 2005). Accordingly, the presence of trust reduces transaction costs, because agreements tend to be more lasting and do not require repeated renegotiation. Researchers therefore assume that high trust societies generate more economic output than low trust societies (Zak & Knack, 2001). In the same way, volunteer work is beneficial for society. Volunteer associations can act as agents between the individual citizen and both the state and society (Tocqueville, 1984). Activities in volunteer associations require collective action and teach their members norms of cooperation and reciprocity (Putnam, 2001). Hence, volunteer work may counteract increasing individualism in modern societies (Bühlmann & Freitag, 2007). Participation in volunteer associations teaches people the ability to cope with conflicts and to make informed judgments about public affairs (Offe & Fuchs, 2002). Acquiring these civic skills turns people into better citizens in a democratic state that demands political participation by its citizens. Furthermore, volunteer work can help to unburden the state by providing public services or goods that otherwise have to be provided by the government (Offe & Fuchs, 2002). This overview shows that access to social capital is especially important for adults because they possess the right to vote and participate in the labor market.

Due to the multiple benefits of social trust and volunteering for individuals and society, researchers have long been interested in their determinants. Most researchers assume that formal education teaches moral values or civic skills that facilitate volunteering and the formation of social trust (Son & Wilson, 2012; Uslaner, 2002). Educational certificates are therefore seen as one of the most important determinants of social trust and volunteering. There is a vast literature offering empirical evidence for the correlation between educational attainment and social trust or volunteering on the individual level (Huang, Maassen van den Brink, & Groot, 2009). Nevertheless, there are still open questions about the mechanisms that can explain how formal education impacts social trust and volunteering. Evidence supporting a direct relationship between educational attainment and social trust or volunteering is scarce and mixed (Glanville, Andersson, & Paxton, 2013; Lancee & Radl, 2014; Oskarsson, Dinesen, Dawes, Johannesson, & K. E. Magnusson, 2017). The effect of education on social trust and volunteering may not be a direct one; instead, it may be generated by resources that more highly educated people possess, e.g., a high income or a more prestigious job (Huang, van den Brink, & Groot, 2011). Some researchers also suspect that the often-found effect of formal education on social trust and volunteering may be confounded by unobserved factors such as cognitive skills and personality traits (Hauser, 2000; Huang et al., 2009). These factors have not been systematically considered in empirical studies to date. Consequently, the mechanisms that can explain how education is linked to social trust and volunteering still have not been completely revealed.

This paper is an attempt to close this research gap by analyzing the data of starting cohort 6, the adult cohort of the German National Education Panel Study (NEPS). The data set contains

detailed retrospective information about the life circumstances of the panel participants as well as on their personality traits, language competencies, and nonverbal cognitive basic skills. This data set allows me to test whether educational attainment in the form of educational certificates is directly correlated with social trust and volunteering or if the correlation is only indirect. The control for cognitive skills and competencies helps me to understand whether education is only relevant for social trust and volunteering because it is connected with better skills or competencies or whether education teaches something beyond cognitive skills (such as values, norms, or a sense of civic responsibility) which facilitate trust and volunteering. Consequently, the aim of this paper is to shed more light on the mechanisms that could explain why education matters for trust and volunteering.

This paper is structured as follows: Section 2 focuses on the impact of education on social trust. In that section, I present an overview of the state of research and outline the theoretical assumptions pertaining to the relationship between educational attainment and social trust. Section 3 does the same for educational attainment and volunteering. The hypotheses for both social trust and volunteering are jointly described in Section 4. Section 5 addresses the data, variables, and the empirical strategy of this paper. In Section 6, empirical results are interpreted; conclusions are drawn in the final section.

2. The impact of educational attainment on social trust

Researchers distinguish between different forms of trust. In this paper, I will draw on Uslaner's (2002) definition of trust. He differentiates between strategic trust and moralistic trust. Strategic trust is trust in people we know and in whom we have confidence based upon previous experiences. Strategic trust is therefore a byproduct of a longer existing relationships and does not support the expanding of relationships. This form of trust is often also called particularized trust by other researchers. In contrast, moralistic trust is trust in strangers whom we have not met before. According to Uslaner (2002), moralistic trust has a moral foundation and reflects an optimistic view of the world. Moralistic trust facilitates the formation of new relationships. In general, trust in strangers is often called generalized trust in the literature (Nannestad, 2008). For the purpose of this paper, I use a very broad definition of social trust which includes strategic trust as well as moralistic trust.

A large number of studies show that having a high educational certificate or completing a high number of years in education is correlated with a high level of individual social trust (Easterbrook, Kuppens, & Manstead, 2016; Helliwell & Putnam, 2007; Paxton, 2007). Huang et al. (2009) have demonstrated in a meta-analysis of 154 empirical studies that, overall, one additional year of schooling increases individual social trust by 4.6% of its standard deviation. But these results do not necessarily reflect a causal effect of education on social trust. Individuals with a high level of trust may be more successful in the education system because their trust allows them to access help from family or fellow students. Consequently, educational attainment may not only influence trust; trust could also influence educational attainment (Coleman, 1988). Furthermore, cognitive skills or personality traits may influence both educational attainment and social trust and therefore may confound the results (Huang et al., 2009). In line with this, the existing literature has shown mixed results. The findings indicate a range of effects, from a strong effect (Huang, 2009; Huang et al., 2011; Sturgis, Patulny, & Allum, 2007) to marginal effects (Glanville et al., 2013; Sonderskov & Dinesen, 2014) to almost no effect (Oskarsson et al., 2017). Of these studies, the only one to shed light

on the mechanisms behind how higher education levels may influence social trust is the study by Huang et al. (2011), which analyzes the effect of college education on social trust. The authors showed that it is not the better resources of the college educated, such as the financial situation or life satisfaction, but their open mindedness and acceptance of heterogeneity in society, both of which lead to their higher level of social trust in comparison to people without a tertiary degree. Overall, previous research has shown that although the causal direction of the relationship between educational attainment and social trust has not been completely disentangled, educational attainment is robustly correlated with social trust. To date, no study has analyzed the correlation between individual educational level and social trust and considered competencies and cognitive basic skills in addition to educational attainment as potential impact factors on social trust.

Although empirical studies analyzing the mechanisms behind the relationship between educational attainment and social trust are scarce, researchers have proposed several mechanisms that explain how educational attainment might influence the development of social trust:

(1) First, some researchers believe that social trust is a moral attitude that is acquired through socialization (Alesina & La Ferrara, 2002; Uslaner, 2002). In this sense, social trust is shaped by an optimistic perception of the world and a belief in the general benevolence of humankind. In educational institutions, students are taught to behave cooperatively and to perceive cooperation as moral behavior, especially in higher educational institutions (Uslaner, 2002). Socialization in educational institutions therefore leads to a more positive attitude towards people in general and may thus have a long term impact on the development of social trust (Huang et al., 2009).

(2) Second, it is easier to place trust in a person if the person's behavior is perceived as predictable (Paxton, 2007). When individuals believe that they share the same norms, rules, signals, and interpretation of the world, they view others as predictable and trustworthy (Alesina & La Ferrara, 2002; Paxton, 2007; Uslaner, 2002). Accordingly, trust is most likely to be placed in people who are perceived as similar to oneself (Alesina & La Ferrara, 2002). Huang et al. (2011) argued that particularly college education has a positive impact on social trust because colleges offer students the opportunity to interact with fellow students from different social, ethnic, or religious groups. This might help students to recognize that the differences between social or ethnic groups are small and that most members of society share the same norms (Huang et al., 2011). In contrast, since the educational expansion in Germany, institutions for lower education tend to be more homogenous with respect to their students' social background than higher-track educational institutions, which offer more opportunities for students to meet others from different social backgrounds (Solga & Wagner, 2013).

(3) Third, trust is related to social skills. Yamagishi (2001) argued that trust is an aspect of social intelligence. He assumes that some people can judge trustworthiness more accurately than others. High trusters are better in recognizing and processing the signs of risks in social interactions. Therefore, social trust is linked to cognitive skills (Yamagishi, 2001). Highly educated people tend to have better cognitive skills than less well-educated ones, because good cognitive skills facilitate educational attainment and education fosters the development of cognitive skills. Good cognitive skills are a prerequisite for the development of social intelligence, which promotes the development of social trust (Yamagishi, 2001). Additionally,

better educated individuals tend to be more informed about their surroundings and can interpret information better; they thus have better knowledge about the consequences of their actions and actions of others. Furthermore, more highly educated individuals often have better language competencies than less educated ones, which may reduce the risks of misunderstandings in communication with others and in media consumption. Consequently, highly educated individuals are more able to predict the behavior of others and estimate the risk of interactions with unknown individuals.

(4) Last, trusting in strangers always involves an element of risk, because the truster relies on incomplete information on the trustee (Coleman, 1990). Individuals with better economic or social resources might be more willing to take a risk when trusting strangers, because if the trust is violated, they can cope with the damage more easily than people with few resources (Huang et al., 2011). More educated people are more likely to do well economically and socially. Therefore, they tend to possess resources that facilitate the formation of high social trust (Huang, 2009). Furthermore, such individuals are less likely to be exposed to traumatic life events, such as a divorce or being a victim of a crime which can—at least in the short term—also shake social trust (Alesina & La Ferrara, 2002; Brehm & Rahn, 1997; Uslaner, 2002). Highly educated individuals tend to live in neighborhoods that are homogenous concerning social norms and with low crime rates and have a lower risk of experiencing social conflicts or being the victim of a crime (Huang, 2009).

3. The effect of educational attainment on volunteering

In addition to social trust, active voluntary participation in organizations and groups is regarded as an important catalyzer of social capital (Putnam, 2001). Volunteering is also called civic engagement, social engagement, or social participation. According to a definition by Wilson (2000, p. 215), "volunteering is any activity in which time is given freely to benefit another person, group or cause. Volunteering is part of a cluster of helping behaviors, entailing more commitment than spontaneous assistance but narrower in scope than the care provided to family and friends." This definition demonstrates that volunteering entails repeated, proactive behavior rather than reactive behavior, such as spontaneously helping a person in need (Wilson, 2000). Volunteer work does not presume formal membership in an organization as long as it takes place in the public sphere (Simonson, Vogel, & Tesch-Römer, 2017; Wilson & Musick, 1997). Completely informal volunteer work, for example, spontaneous neighborly help, such as watching a neighbor's children, is not included in this definition (Simonson et al., 2017). Volunteer work is unpaid or can come with small monetary compensation but the aim of volunteer work should not be to replace gainful employment (Ehrhardt, 2011; Simonson et al., 2017).

Due to the benefits of volunteer work for society and the democratic state, researchers have long been interested in motivating factors for volunteering. Educational attainment stands out as one of the most important determinants of volunteering. Many empirical studies show that in most countries, more highly educated individuals—indicated by educational certificate or years of education—are more likely to participate in volunteer work (e.g., (Helliwell & Putnam, 2007; Kohli, Hank, & Kunemund, 2009; Offe & Fuchs, 2002). In Germany, 52.3% of high-educated but only 28.3% of low-educated individuals who are at least 14 or older are currently volunteering (Simonson et al., 2017). This correlation is robust. A meta-analysis by Huang (2009) including 286 empirical studies demonstrated that one additional year of schooling

increases the likelihood of being a member of a nonpolitical organization or of engaging in voluntary activities by 4.8% of its standard deviation. However, these results do not necessarily represent a causal relation between educational attainment and volunteering. Lancee and Radl (2014) argued that the correlation between education and participating is caused by a selection effect. Due to certain underlying characteristics, people who are more likely to volunteer are also more likely to achieve a high educational certificate. Empirical evidence shows that changes in educational level in adulthood—for example the acquisition of a university degree—have little or no effect on their likelihood of volunteering (Egerton, 2002; Lancee & Radl, 2014). Other researchers have claimed that the relationship between education and volunteering may be confounded by unobserved factors such as cognitive skills and competencies, which affect both educational attainment and volunteering (Gibson, 2001; Hauser, 2000). Cognitive skills and competencies may not only be the result of education but may already exist prior to education (Hauser, 2000). Research has demonstrated that cognitive skills and language competencies, which are interrelated with educational attainment, have a positive effect on volunteering (Denny, 2003; Hauser, 2000). Studies comparing identical twins have found a very small positive or even a negative effect of education on volunteering (Gibson, 2001; Schnittker & Behrman, 2012). This demonstrates that genetic predispositions may confound the relationship between education and participation in volunteer work.

This overview of previous research illustrates that researchers have already uncovered some of the mechanisms that explain how educational attainment affects volunteering. Nevertheless, analyses of the effect of educational attainment on volunteering that consider cognitive skills and competencies as potential confounders of education are still rare.

In the literature, researchers have proposed different impact paths of education on volunteer work.

(1) First, researchers have claimed that altruistic values and norms are the driving forces behind the decision to volunteer (Son & Wilson, 2012). Prosocial attitudes stressing the importance of caring for others can be fostered by socialization in the family, church, or school and provide a psychological motivation for volunteering (Janoski, Thomas, Musick, & Wilson, 1998; Mustillo, Wilson, & Lynch, 2004; Oesterle, Johnson, & Mortimer, 2004). Schooling in particular teaches children a sense of civic obligation and responsibility (Brady, Verba, & Lehmann Schlozman, 1995; Oesterle et al., 2004). Education makes students better informed about society and more aware of problems (Denny, 2003; Offe & Fuchs, 2002). Furthermore, the school curriculum and interactions with peers in school foster prosocial attitudes and values such as reciprocity, trust, and respect etc. (Huang, 2009; Wilson, 2000). Schools often also provide or sponsor programs for students to volunteer (Huang, 2009).

(2) However, participation in volunteer work does not imply that the volunteers cannot benefit from participation (Wilson, 2000). Exchange theorists and rational choice theorists state that individuals will volunteer if they benefit from their participation and if the benefits outweigh the costs, such as time or income loss (Ehrhardt, 2011; Handy et al., 2009). Volunteer work can have many benefits: Socializing with like-minded people, finding work-relevant contacts, building a positive reputation, and providing emotional satisfaction. Furthermore, volunteer work can teach people labor market skills and may help job seekers to send positive signals to potential employers (Ehrhardt, 2011; Handy et al., 2009; Wilson, 2000). More

educated people tend to have jobs with a higher wage. Hence, volunteer work leads to a higher income loss for better-educated people than for less-educated low earners (Vaillancourt, 1994). Accordingly, better-educated people should be less likely to volunteer than less-educated ones. Nevertheless, volunteer work also has benefits for highly educated people which might outweigh the wage loss: Highly educated people may have career opportunities for which volunteer work may be especially helpful as part of CV building (Handy et al., 2009; Vaillancourt, 1994). They may also benefit more from the social networks acquired through volunteer work (Vaillancourt, 1994). These arguments demonstrate that education may have a positive effect on volunteering.

(3) Lastly, Wilson & Musick (1999) have argued that volunteer work is like any other form of productive labor and, hence, requires resources. Education has a direct and indirect influence on the resources that are useful for volunteer work. Important resources for volunteer work include good health, available time, human capital, and social networks (Vaillancourt, 1994; Wilson, 2000). Better-educated individuals tend to work in jobs that require more working hours and therefore have less time for volunteer work, but they tend to have better health, which facilitates volunteering (Lleras-Muney, 2005; Wilson, 2000). Furthermore, there is a market for volunteer work that resembles the market for paid labor. Individuals with high human capital are more qualified to do volunteer work because they possess more useful skills for volunteer work, for example, cognitive skills, reading competencies, or civic skills. (Wilson, 2000). Education also has an indirect impact on social and occupational status. Individuals in higher occupational positions may acquire managerial and social skills through paid employment that are required for some volunteer work (Lancee & Radl, 2014). Volunteers often learn about opportunities to volunteer through social ties and many volunteers report that they were asked to volunteer (Freeman, 1997; Wilson, 2000). Therefore, social capital in the form of recruiting networks constitutes an important resource for volunteer work. A prestigious occupational and/or social position makes a person more influential in society, and therefore, more attractive for volunteer organizations (Wilson, 2000). Furthermore, more highly educated individuals possess more extensive and heterogeneous social networks (Jusri & Kleinert, 2018). This increases their chances of being informed about opportunities to volunteer or of being recruited by social ties (Freeman, 1997; Oesterle et al., 2004).

4. Hypotheses

Although the theoretical assumptions on how educational attainment, skills, and competencies influence social trust and the likelihood to volunteer differ, they lead to similar hypotheses. Therefore, I present the hypotheses for both social trust and volunteering together.

Hypothesis (1). I assume that educational attainment has a direct positive influence on social trust because higher track educational institutions teach norms of cooperation and social trust and allow their students to meet people from other social and ethnic groups, leading to open mindedness. Furthermore, higher track educational institutions cultivate altruistic values and norms as well as a sense of civic duty, all of which foster volunteering. Educational attainment is also a useful resource that qualifies individuals for volunteer work and makes them attractive for recruiters from volunteer organizations or their own social network. If the positive influence of educational attainment on social trust and volunteering is indeed caused by norms and values acquired in educational institutions or by the signaling effect of an

educational certificate, educational attainment should be directly correlated with social trust and volunteering beyond the effect of returns to education (e.g., such as lower unemployment risk), which also foster social trust and volunteering. *Consequently, I propose that individuals with a higher educational certificate report a higher level of social trust (1a) and are more likely to volunteer (1b) than individuals with a lower educational certificate. This correlation is direct.*

Additionally, I expect that educational attainment is indirectly correlated with social trust and volunteering because highly educated people possess more valuable resources and have better language competencies and cognitive skills than less well-educated people:

Hypothesis (2): *I assume that the educational certificate is indirectly correlated with social trust and volunteering by enhancing resources (such as occupational status, employment history, place of residence, etc.) that promote a high level of social trust (2a) and encourage volunteering (2b).*

Hypothesis (3): As previously argued, good language competencies may reduce the risk of misunderstandings in social interactions and consequently foster social trust. The data in this study do not provide a measurement of oral language competencies. Therefore, this analysis only uses reading competencies, which are measured based on the concept of reading literacy, to capture language competencies in my analysis. Good reading competencies may help to avoid misunderstandings in written communication. Moreover, good reading competencies may ease understanding and interpretation of information circulated in the media. Incorrect interpretations of news may lead to an overestimation of the crime rate or foster prejudices towards specific groups in society and negatively influence trust in strangers. Good reading competencies also constitute useful resources for volunteering and make individuals more attractive volunteers for recruiters. Consequently, I expect that *individuals with high reading competencies show a high level of social trust (3a) and are more likely to volunteer (3b) than individuals with a lower educational certificate*.

Hypothesis (4): Following the argument made by Yamagishi (2001), I assume that social trust is partly based on social intelligence. I therefore assume that nonverbal cognitive basic skills have an impact on social trust. Moreover, nonverbal cognitive basic skills are valuable resources for volunteering and increase the attractiveness of potential volunteers for recruiters. *Individuals with higher nonverbal cognitive basic skills should therefore show a higher level of social trust (4a) and be more likely to volunteer (4b) than people with low nonverbal cognitive basic skills.*

5. Research design

5.1 Data and variables

The data used in these analyses is starting cohort 6 (adult cohort) of the German National Educational Panel (NEPS-SC6). NEPS-SC6 is a panel study that has been conducted annually since 2007. It is representative for the German adult population of the birth cohorts 1944–1986 (Blossfeld, Roßbach, & Maurice, 2011; Stocké, Blossfeld, Hoenig, & Sixt, 2011)[1]. The

[1] This paper uses data from the National Educational Panel Study (NEPS): Starting Cohort Adults, doi:10.5157/NEPS:SC6:8.0.0. From 2008 to 2013, NEPS data was collected as part of the Framework Program for the Promotion of Empirical Educational Research funded by the German

study collects retrospective information about adults' educational trajectories and their occupational status (Allmendinger et al., 2011). The cross-sectional sample for the analyses consists of individuals who participated in wave 6 in 2013 (this is when information for the main variables was collected) and who additionally participated in a reading competence test and a test for nonverbal cognitive basic skills, perceptual speed, and reasoning respectively. The sample is restricted to participants who have completed the first formal educational phase[2] and were not yet retired. It consisted of 10,547 individuals. 51% of the individuals are female and the participants are 50 years old on average.

Main variables

The dependent variables of the analyses are social trust and volunteering; both were measured in wave 6. Social trust is measured using a sum score of the answers to the following three questions: "Generally speaking: Do you believe that you can trust most people or that you can never be careful enough when dealing with other people?"; "Do you believe that most people try to impose on your kindness, if opportunity arises, or do most people try to behave honest?"; "And do you believe that people mostly try to help others or that people mostly act in their own interest?"[3]. The scales for the answer ranges from 0 to 10, where 0 always represents the lowest level of trust and 10 the highest level of trust.

The measurement of volunteering in NEPS was in line with the definition given in Section 3.1 and is not restricted to formal membership of volunteering organizations. The interviewees were first asked if they were currently actively participating in churches, clubs, political parties, projects, self-help groups, parent-teacher associations, or other initiatives. In the second step, respondents were asked if their volunteer work included active participation or if they were only passive (members). I categorized an active participation as volunteering; I did not do so for passive memberships of volunteer organizations or volunteering without active tasks. Accordingly, volunteering is captured by a dichotomous variable, whereby 1 means the respondent was currently actively volunteering and 0 means the respondent was not actively volunteering.

The main independent variables are education, reading competencies and nonverbal cognitive basic skills. To measure the highest educational level, I differentiated between five groups: (1) no school-leaving certificate and low or intermediate secondary certificate without vocational training, (2) lower secondary certificate with vocational training, (3) intermediate secondary certificate with vocational training, (4) higher secondary certificate, and, (5) tertiary education. Language competencies are not directly measured in NEPS. Hence, I used the results of a reading competence test in the form of WLE estimates (Hardt, Pohl, Haberkorn, & Wiegand, 2013)[4]. The reading competence test in NEPS focused on the concept of reading

Federal Ministry of Education and Research (BMBF). As of 2014, NEPS is carried out by the Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg in cooperation with a nationwide network.

[2] According to my definition, the first formal educational phase starts with the first school attendance and ends with the last attendance of a formal educational institution before a break of at least five years before the next formal educational episode.

[3] These items are also used in a similar form in other large scales surveys and aim to measure generalized trust. Nevertheless, the formulation of the questions does not exclude that respondents think about specific persons when answering the question. Therefore, depending on the interpretation of the respondents, particularized trust is also captured by these items (Weigand, 2018). This is in line with my definition of social trust which includes generalized as well as particularized trust.

[4] Reading competencies were tested for a subsample in wave 3 (2010/11) and for a subsample in wave 5 (2012/13).

literacy, which means it tries to capture reading competences that enable individuals to participate in society. Test participants were confronted with types of texts that they would encounter in daily life such as information texts, instruction texts, or advertising texts. The texts focus on text comprehension and assess three cognitive requirements: finding information in the text, drawing text-related conclusions, and text reflection (Hardt et al., 2013). Educational attainment and reading competencies are closely interrelated as highly educated individuals often possess better reading competencies than less well-educated ones. Nevertheless they are not completely interchangeable as empirical research shows (Artelt, Schiefele, Schneider, & Stanat, 2002). In NEPS, two non-verbal cognitive basic skills are measured[5]: One test assesses perceptual speed and another reasoning. The sum score of each of these cognitive basic skills forms one variable. Nonverbal cognitive basic skills as measured in NEPS mostly represent fluid intelligence. Nonverbal cognitive skills are therefore mainly based on genes and are largely independent of education (Brunner, Lang, & Lüdtke, 2014). However, good cognitive basic skills may lead to better educational attainment.

Furthermore, the analysis considers valuable resources that promote social trust and volunteering and are returns to educational attainment. The analyses on social trust control for the occupational biography and place of residence. High social status and good social integration are regarded as returns to education and reduce the likelihood of trusting strangers (Paxton, 2007). Hence, I control for unemployment experience in years and occupational status measured by ISEI-08, both of which reflect respondents' status and integration. Empirical evidence illustrates that individuals living in less anonymous and more homogenous areas are more trusting (Alesina & La Ferrara, 2002; Uslaner, 2002). Unfortunately the data does not allow me to measure the characteristics of the immediate neighborhood of the participants. I used the smallest range data that was available. Nevertheless, the explanatory power of these variables might be restricted. I control for the degree of urbanization of the place of residence (rural area, urbanized area or urban agglomeration[6]), residence continuity (residence in the same municipality for 10 years or more, residence in the same municipality (*Gemeinde*) for less than 10 years and no information on residence history), regional unemployment rate, and proportion of foreigners on the district level (*Landkreisebene*).

In the analyses on volunteering, I control for employment characteristics, family, physical resources and place of residence. Working hours per week (not employed/working less than 35 hours/working more than 35 but maximum 41 hours/working more than 41 hours) are a time constraint for volunteer work (Vaillancourt, 1994). Unemployment risk decreases with education and unemployed people are less likely to volunteer because long unemployment leads to a loss of human capital and lower social integration (Wilson, 2000). This is considered by controlling for unemployment experience in years. Children may have a positive effect on the extent of social networks and consequently on volunteering (Bühlmann & Freitag, 2004; Jusri & Kleinert, 2018). I therefore controlled for the number of children in the household. Moreover, I included self-rated health (good/medium/bad) in the models. Good health is a

[5] The two tests for cognitive basic skills were conducted in wave 7 (2014/15). Hence, I use a predictor that was measured after the dependent variables. Although cognitive basic skills decline slowly with age, it should not change too much within one year (Desjardin & Warnke, OECD Working paper 72/2012).

[6] This categorization follows the typification "siedlungsstrukturelle Regionsgrundtypen 2009" of the German Federal Institute for Research on Building, Urban Affairs, and Spatial Development.

prerequisite for volunteer work and is strongly influenced by education (Cutler & Lleras-Muney, 2008). Place of residence and mobility also play a role in volunteering; these are influenced by educational level. People living in rural areas and less mobile people are more likely to volunteer. Reduced anonymity may lead to higher possibilities for sanctioning nonparticipants (Bühlmann & Freitag, 2007; Lancee & Radl, 2014). Place of residence and residence continuity are operationalized as described in the previous paragraph.

Control variables

Additionally, the models consider potential confounders of education that are discussed in the literature. In the analyses on social trust and volunteering, personality traits are controlled for. The belief that one can control one's environment has a positive effect on social trust, volunteering, and educational attainment (Son & Wilson, 2017; Uslaner, 2002). Consequently, I control for internal and external locus of control. Furthermore, high self-esteem is beneficial for educational attainment as well as for the development of social trust (Uslaner, 2002). Therefore, I include global self-esteem in the analyses with social trust as the dependent variable. Also, and only for the analyses for social trust, I take previous family experiences into account that may shake someone's trust in other people (Alesina & La Ferrara, 2002; Huang et al., 2011): if the respondent was raised with both parents (yes/no) and if the respondent had experienced a divorce (at least once divorced/never divorced/unclear biography).

In Germany, chances of succeeding in the educational system are unequally distributed. Social reproduction theory argues that educational institutions select students from specific backgrounds and therefore help to perpetuate social inequalities (Collins, 2009). For example, students in Germany from immigrant backgrounds or lower social origin are less likely to attend a higher secondary educational institution or to enroll in university than students without an immigrant background and with highly educated parents (Reimer, 2009). Furthermore, the participants of starting cohort 6 of the NEPS represent a cohort that experienced educational expansion in Germany, which led to an increase in participation in higher secondary and tertiary education. During this period, especially women's educational attainment increased tremendously (Reimer, 2009). In order to capture an effect of educational certificate on social trust and volunteering that goes beyond unequal educational chances, all models for social trust and volunteering control for sex, migration background, age, the highest educational degree of the parents, and residence in eastern or western Germany.

The distribution of the variables in the models are presented in Table 1 for social trust and Table 2 for volunteering.

Table 1

Distribution of the variables included in the models for social trust

Variable	N	Mean	Std. Dev.	Min.	Max.
Social trust	5,316	5.83	1.63	0	10
Highest educational degree	5,316	-	-	0	4
Female	5,316	.51	.50	0	1
Migration background	5,316	-	-	0	2
Age	5,316	50.33	10.74	26.67	69.75
Age²	5,316	2647.87	1053.96	711.11	4865.06
Highest educational degree of parents	5,316	-	-	0	2
East Germany, incl. Berlin	5,316	.22	.41	0	1
Not raised with both parents	5,316	.11	.32	0	1
Marital history	5,316	-	-	0	2
Reading competence (WLE)	5,316	-.01	1.33	-4.42	4.49
Perceptual speed	5,316	32.11	9.41	0	85
Reasoning	5,316	8.24	2.74	0	12
Occupational status (ISEI-08)	5,316	-	-	0	4
Unemployment experience, in years	5,316	1.56	3.63	0	41.83
Locus of control: internal	5,316	4.17	.64	1	5
Locus of control: external	5,316	2.35	.82	1	5
Global self-esteem	5,316	43.18	4.81	19	50
Place of residence	5,316	-	-	0	2
Residence continuity	5,316	-	-	0	2
Regional unemployment rate	5,316	6.89	2.93	1.3	15.2
Regional proportion of foreigners	5,316	8.18	5.29	1	31.3

Source: doi:10.5157/NEPS:SC6:8.0.0, own calculations

Table 2

Distribution of the variables included in the models for volunteering

Variable	N	Mean	Std. Dev.	Min.	Max.
Volunteering	5,303	.41	.49	0	1
Highest educational degree	5,303	-	-	0	4
Female	5,303	.51	.50	0	1
Migration background	5,303	-	-	0	2
Age	5,303	50.35	10.73	26.67	69.75
Age²	5,303	2650.61	1054.23	711.11	4865.06
Highest educational degree of parents	5,303	-	-	0	2
East Germany, incl. Berlin	5,303	.22	.41	0	1
Reading competence (WLE)	5,303	-.02	1.33	-4.42	4.49
Perceptual speed	5,303	32.08	9.39	0	85
Reasoning	5,303	8.23	2.75	0	12
Working hours per week	5,303	-	-	0	3
Unemployment experience, in years	5,303	1.57	3.67	0	41.83
Number of children in household	5,303	.80	1.01	0	9
Locus of control: internal	5,303	4.17	.64	1	5
Locus of control: external	5,303	2.35	.838	1	5
Health	5,303	-	-	0	2
Global self-esteem	5,303	43.066	4.935	14	50
Place of residence	5,303	-	-	0	2
Residence continuity	5,303	-	-	0	2

Source: doi:10.5157/NEPS:SC6:8.0.0, own calculations

5.2 Empirical strategy

This paper aims to reveal if a high level of education and high competencies are correlated with high social trust and if they increase the likelihood of volunteering. The analyses are restricted to adults. Consequently, the respondents' level of social trust and volunteering activities before completing education cannot be observed. As a result, I cannot identify causal effects of education or competencies on the two dependent variables. Nevertheless, the descriptive results of the analyses can capture correlations and uncover mechanisms that may explain how education is interrelated with social trust and volunteer work and identify what role competencies and skills might play. For the dependent variable "social trust," I conduct linear regression models. For the dichotomous outcome "volunteering," I estimate logistic regression models with average marginal effects (AME). AMEs are less confounded by

unobserved heterogeneity than coefficients or odds ratios (Mood, 2010). All regression models are weighted[7] and robust standard errors are estimated.

6. Results

6.1 Descriptive results

First, I will examine the distribution of the two variables of interest, social trust and volunteering. All results are weighted[8]. The individuals report a level of trust of 5.5 on average (minimum 0, maximum 10). 33% of the individuals are currently actively volunteering, while 67% are not currently participating in volunteer work or are only passive members[9].

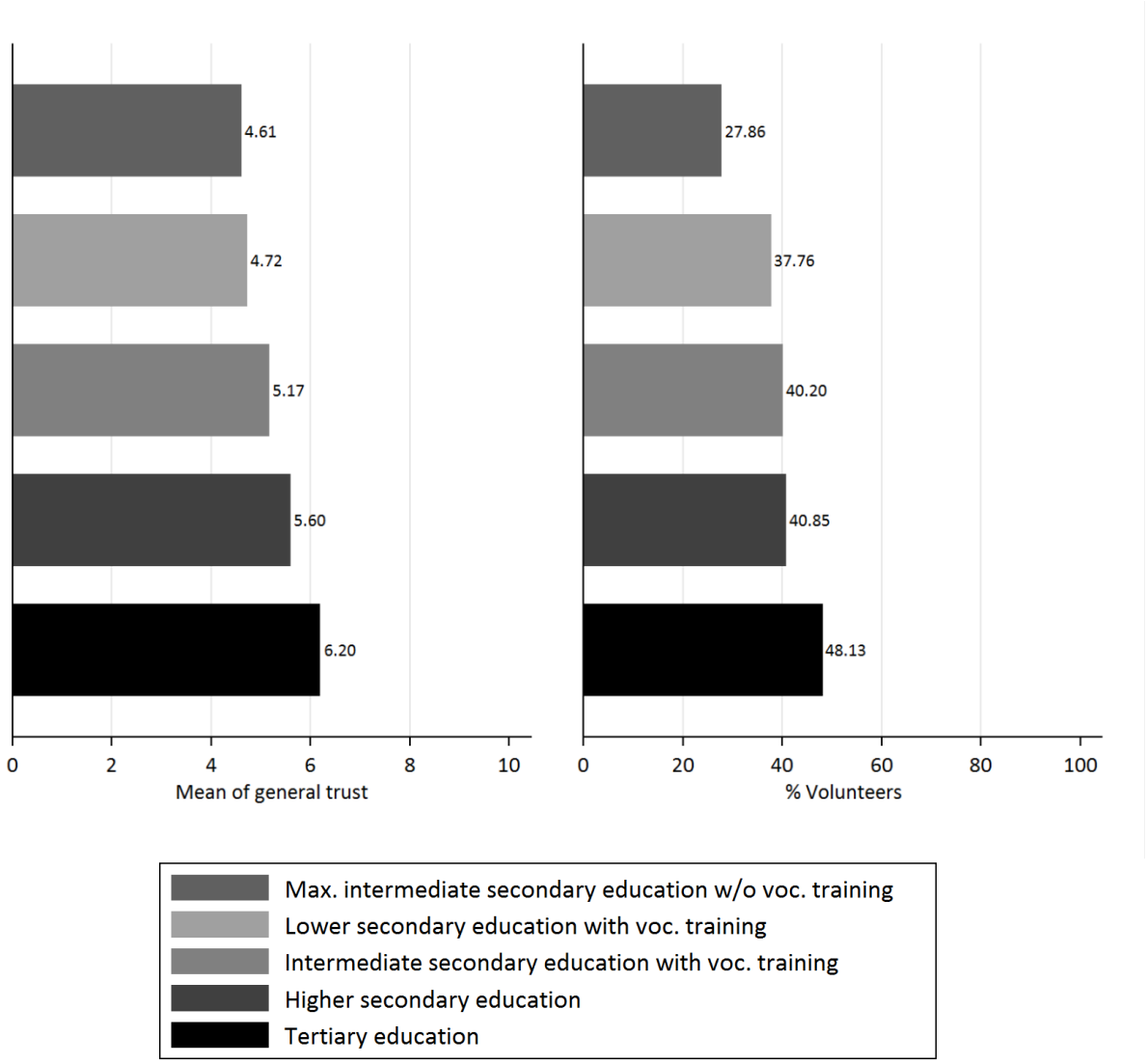
Furthermore, the descriptive results support my expectation showing that education is positively related to a high level of trust and the willingness to volunteer. As shown in Figure 1, more highly educated individuals indicate a higher level of trust on average than less well educated ones. In the group of individuals with tertiary education, 48% actively volunteer. In contrast, only 28% of low-educated individuals actively participate in volunteer work.

The same trend can be observed when comparing the level of trust and percentage of volunteers in different reading competence quintiles (Figure 2). As expected, individuals with better reading competencies possess a higher level of trust on average than individuals with lower competence. In the highest reading-competence-level group, 51% volunteer, while in the first reading-competence quintile, only 33% participate in volunteer activities.

[7] The weights I use are cross-sectional weights calibrated to the Microcensus 2012 and are additionally adjusted for the probability to participate in the competency tests.

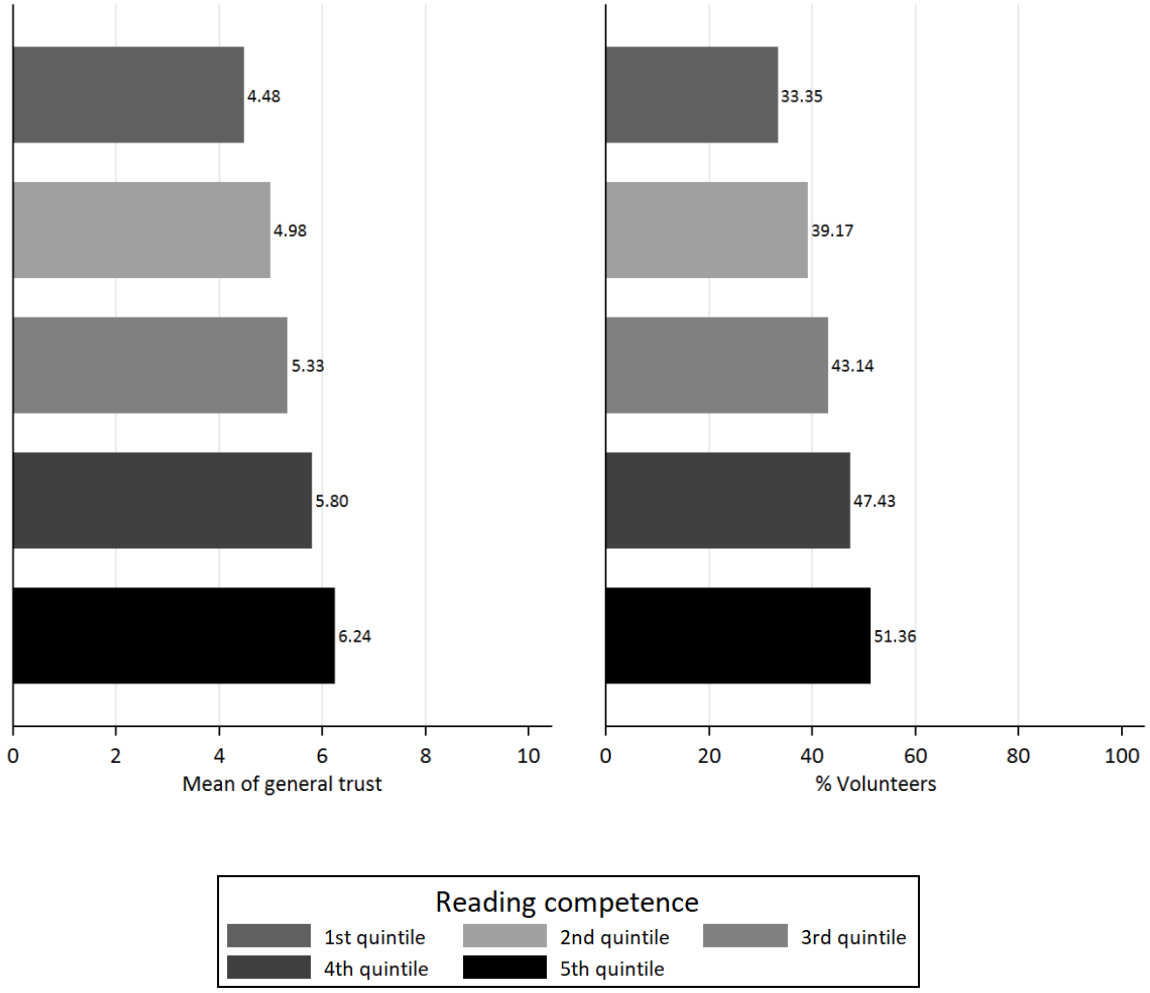
[8] The unweighted distribution of all variables in the analysis sample can be found in Table A1 in the appendix.

[9] According to the German Volunteer Survey (deutscher Freiwilligensurvey) 44% of the German population volunteered in the year 2014. The German Volunteer Survey does not just survey adults but also includes young people aged 14 years and older. It defines volunteering as participation in volunteer work in the last 12 months (Simonson et al., 2017). The different operationalization of volunteer work and the different sampling may be responsible for the difference in the percentage of volunteers between the German Volunteer Survey and the NEPS. Moreover, the German Volunteer Survey reports unweighted results.



Source: doi:10.5157/NEPS:SC6:8.0.0, own calculations, weighted

Figure 1. Mean of social trust and percentage of volunteers by educational attainment



Source: doi:10.5157/NEPS:SC6:8.0.0, own calculations, weighted

Figure 2. Mean of social trust and percentage of volunteers by reading competence quintile

6.2 Multivariate results

The multivariate results are interpreted separately for trust and volunteering. First, the multivariate results for social trust are shown. Table 3 displays the results of the linear regression (full analysis in Appendix A1). Model 1 illustrates that an increasing educational level is correlated with an increasing level of social trust if only background variables are controlled for. But after including reading competencies and nonverbal cognitive basic skills in Model 2 and 3, all coefficient sizes of educational level are reduced and lose their significance except tertiary education. While perceptual speed seems to have no effect on social trust, good reading competencies and high cognitive skills relating to reasoning are correlated with high social trust. The additional control for occupational history, personality traits, and characteristics of the place of residence in Model 4 leads to a further reduction of the coefficients of educational level and the significance level is reduced to the 6% level. Reading competencies and reasoning skills remain significant in Model 3 and 4.

Table 3

Linear regression: social trust

Social trust	Model 1	Model 2	Model 3	Model 4
Highest educational degree				
Max. intermediate secondary education w/o voc. training	-0.321* (0.163)	-0.219 (0.162)	-0.187 (0.161)	-0.043 (0.158)
Lower secondary education with voc. training	-0.323** (0.110)	-0.179† (0.109)	-0.138 (0.107)	-0.079 (0.107)
Intermediate secondary education with voc. training	(-) (-)	(-) (-)	(-) (-)	(-) (-)
Higher secondary education	0.207† (0.112)	0.050 (0.112)	0.039 (0.112)	0.064 (0.105)
Tertiary education	0.530*** (0.096)	0.254** (0.097)	0.240* (0.097)	0.194† (0.101)
Reading competencies (WLE)		0.263*** (0.031)	0.227*** (0.032)	0.198*** (0.031)
Perceptual speed			-0.003 (0.005)	-0.009† (0.005)
Reasoning			0.056** (0.019)	0.058** (0.018)
Constant	2.541** (0.788)	3.114*** (0.800)	2.785 *** (0.813)	1.345 1.016
Sociodemographic background	X	X	X	X
Resources and personality				X
Adj. R^2	0.075	0.105	0.109	0.165

Robust standard error in brackets; N = 5.316;
Source: doi:10.5157/NEPS:SC6:8.0.0, own calculations, weighted
Significances: † p< 0.10, * p < 0.05, ** p < 0 .01, *** p < 0.001
Sociodemographic background: sex, immigration background, highest educational degree of the parents, residence in eastern Germany, raised by both parents, at least once divorced.
Resources and personality: occupational status (ISEI-08), unemployment experience in years, global self-esteem, internal and external locus of control, degree of urbanization of place of residence, residence continuity, regional unemployment rate, proportion of foreigners on district level.

Overall, this result demonstrates that there is only a marginal positive direct correlation between educational level and social trust, which is rather weak. Tertiary education has the strongest correlation with social trust. This is in line with the theoretical argument proposed by Huang et al. (2011) that college education particularly facilitates the development of social trust, probably because of the heterogeneous composition of the student body. Nevertheless, the results only weakly support hypotheses 1a, which assumed a direct relation between

educational level and social trust because education teaches students values, norms, or other attitudes that increase their level of social trust. The results illustrate that the relationship between education and social trust is mainly an indirect one. In part, more highly educated individuals report a higher level of trust, because they have better reading competencies and reasoning skills than less well educated individuals. Good language competencies and the capacity to draw logical conclusions seems to be important for the development of social trust. This supports Yamagishi's (2001) hypothesis that trust is an aspect of social intelligence and depends on individuals' ability to accurately judge the trustworthiness of others. Perceptual speed, however, does not play any role for social trust. Consequently not all forms of nonverbal cognitive skills are relevant for the development of trust. Overall, the results on competencies and skills support Hypothesis 3a and, only for reasoning, Hypothesis 4a. The findings further show that many resources and personality traits that are strongly related to high educational attainment are important for the development of high social trust. Of particular interest are unemployment experience, self-esteem, and external locus of control. While unemployment risk is lower for better-educated individuals, the personality aspects mentioned here may already exist prior to schooling and therefore lead to better educational attainment. Although the coefficients of characteristics of the living area are not significant and very small in the analysis, the results hint that they are relevant for trust. The coefficient of tertiary education reaches the 6% significance level after the place of residence is controlled for in Model 4. This shows that especially college-educated individuals are more mobile and tend to live in areas that are deleterious for high social trust, such as bigger cities. In conclusion, education is strongly indirectly correlated with social trust. This is in line with Hypothesis 2a.

In the next section, the results for volunteering are presented. Table 4 displays the findings of the logistic regression (full analysis in Appendix A2). Model 1 shows that there is a positive correlation between volunteering and educational level. Individuals with tertiary education are more likely to actively volunteer than individuals with an intermediate education and a vocational qualification (reference group). In contrast, individuals with no school-leaving certificate or lower or intermediate education without a vocational qualification (educational group 1) have a lower probability of volunteering than the reference group. When reading competencies and nonverbal cognitive basic skills are included in Model 2 and 3, the AMEs of the educational certificate are reduced and only the AME of the lowest educational level remains significant. While non-verbal cognitive basic skills seem to have no impact on volunteering, higher reading competencies are significantly correlated with volunteering. The introduction of further controls for potential mediators of education, such as occupational characteristics, personality, health, and place of residence lead to a small reduction of the significant AMEs of low education and literacy, but the correlations remain significant.

The results for volunteering indicate that there is a weak direct and positive correlation between educational attainment and the willingness to actively participate in volunteering work. Very low education is particularly obstructive for volunteering. This correlation also exists independently of reading competencies, nonverbal cognitive basic skills, and resources that come with high education. Hence, the evidence gives (weak) support for hypothesis 1b.

Table 4

Logistic regression: *volunteering*

Volunteering	Model 1	Model 2	Model 3	Model 4
Highest educational degree				
Max. intermediate secondary education w/o voc. training	-0.130** (0.040)	-0.118** (0.042)	-0.112** (0.042)	-0.087* (0.041)
Lower secondary education with voc. training	-0.039 (0.032)	-0.017 (0.033)	-0.010 (0.033)	-0.008 (0.031)
Intermediate secondary education with voc. training	(-) (-)	(-) (-)	(-) (-)	(-) (-)
Higher secondary education	-0.009 (0.035)	-0.036 (0.034)	-0.039 (0.034)	-0.028 (0.032)
Tertiary education	0.069* (0.031)	0.022 (0.032)	0.019 (0.032)	0.024 (0.032)
Reading competencies (WLE)		0.042*** (0.009)	0.035*** (0.010)	0.028** (0.010)
Perceptual speed			0.002 (0.001)	0.001 (0.001)
Reasoning			0.005 (0.005)	0.005 (0.005)
Sociodemographic background	X	X	X	X
Resources and personality				X
McFadden (adj.) R^2	0.0022	0.029	0.030	0.066

Robust standard error in brackets; N = 5.316;
Source: doi:10.5157/NEPS:SC6:8.0.0, own calculations, weighted.
Significances: † p< 0.10, * p < 0.05, ** p < 0 .01, *** p < 0.001.
Sociodemographic background: sex, immigration background, highest educational degree of the parents, residence in eastern Germany.
Resources and personality: weekly working hours, unemployment experience in years, number of children in household, internal and external locus of control, health, degree of urbanization of place of residence, residence continuity.

Apparently, intermediate and higher education teaches students values, norms, civic skills, or other attitudes that increase their chance of volunteering in later life. Or, individuals that attain at least an intermediate educational qualification possess an attitude that encourages volunteering and which low educated individuals lack. Nevertheless, the analysis emphasizes that educational attainment is indirectly correlated with volunteering to a greater extent than directly. Especially college-educated individuals are more likely to volunteer because they possess better reading competencies than low-educated individuals. Reading competency is positively associated with volunteering. Consequently, these results support Hypothesis 3b.

This result is in agreement with Hauser's (2000) and Denny's (2003) findings. Good reading competencies seem to be an important resource for volunteering, either because they qualify individuals for volunteer work or because they make individuals more attractive for volunteer group recruiters. In contrast, certain non-verbal cognitive basic skills—perceptual speed and reasoning—seem to be irrelevant for participation in volunteer work. Hence, Hypothesis 4b must be rejected. This contradicts the results of Hauser (2000), who found a positive direct effect of cognitive skills on social participation. There is one plausible reason for this: Hauser used the results of an IQ test as the predictor in his analyses. These IQ tests were conducted before high school completion and measure both fluid and crystallized intelligence. Therefore, the results cannot be compared with my analysis because the cognitive skills tests in NEPS mainly capture components of fluid intelligence. According to my findings, volunteers and nonvolunteers do not vary in their nonverbal cognitive basic skills. Furthermore, to a small degree, educational attainment is also important for volunteering due to life circumstances that are fostered by education, notably working hours, unemployment experience, number of children, and place of residence. This result is in line with the expectations of Hypothesis 2b.

7. Conclusion

Educational attainment is seen as one of the most important determinants of social trust and volunteering (Huang et al., 2009). Previous studies show that educational attainment is indeed correlated with these two catalyzers of social capital. Nevertheless, the underlying mechanisms of this relationship have not been completely understood. Many researchers argue that education teaches norms and values that promote social trust and volunteering. However, potential confounders of the effect of education on social trust and volunteering, especially competencies, cognitive skills, and personality traits have often been neglected in previous empirical studies. The aim of this paper was to find out whether educational attainment is still directly correlated with social trust and volunteering if competencies, cognitive skills, and resources that are returns to education are controlled for.

The empirical evidence illustrates that education is only weakly directly correlated with social trust and volunteering when controlling for reading competencies, nonverbal cognitive basic skills, personality traits, and the resources that come with higher education. Consequently, the role that education plays in teaching moral values, a civic sense of duty, or other positive attitudes, leading to the development of high social trust and motivating volunteering, is not as prominent as often assumed. The direct relationship between social trust and education is especially weak. This contradicts the findings of Huang et al. (2011) for college-educated individuals. Huang et al. (2011) found that it was not the better resources of college-educated people, such as their financial situations, occupational status, or happiness, but mostly their tolerance and openness that was responsible for their higher level of trust in comparison to individuals without a college degree. Even if my results do not offer strong support for the hypothesis that altruistic values or a feeling of civic obligation cause the link between education and social trust as well as the link between education and volunteering, it does not mean that they are not relevant for trust and volunteering. Some researchers suggest that these values are mostly taught within the family and that parents act as role models for their children (Uslaner, 2002). According to my results, education seems to be mainly important for social trust and volunteering because better-educated individuals have better reading competencies and, only for trust, have better non-verbal cognitive basic skills. Reading competencies are probably an educational outcome to a certain degree, but they are also

strongly influenced by other factors such as parents' social status, educational level, and resources as well as the reading behavior in the family (Baumert, Waterman, & Schümer, 2003). In contrast, nonverbal cognitive basic skills as measured in the NEPS are mostly affected by genes and confound the relationship between education and social trust. In conclusion, my findings suggest that reading competencies and nonverbal cognitive basic skills are very important resources for social trust and volunteering and should not be neglected as their determinants. Furthermore, life experiences and resources, which are influenced by education, are another channel through which education is indirectly linked to social trust and volunteering.

Finally, the question remains whether education improves democratic citizenship as is often assumed by politicians and educators (Milligan, Moretti, & Oreopoulos, 2004). My analyses support this argument to a certain degree. Schools might teach their students positive values or attitudes but the most notable skill they teach is reading, which makes students more trusting and more engaged citizens in adulthood. In contrast, cognitive basic skills, which are also positively related to trust and volunteering, are difficult to improve by education. However, the cross-sectional data set used in the analyses does not allow me to observe the panel participants before educational attainment but only after they have finished their formal education. Consequently, the results cannot be used to derive conclusions about causal effects of education on social trust and volunteering. Nevertheless, I used the rich data to control for theoretically and empirically relevant mediators and confounders of education on social trust and volunteering. Hence my analyses represented one of the first attempts to differentiate between the direct and indirect effects of education on social trust and volunteering.

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Appendix

Table A1 *Linear regression: social trust*

Social trust	Model 1	Model 2	Model 3	Model 4
Highest educational degree				
Max. intermediate secondary education w/o voc. training	-0.321*	-0.219	-0.187	-0.043
	(0.163)	(0.162)	(0.161)	(0.158)
Lower secondary education with voc. training	-0.323**	-0.179†	-0.138	-0.079
	(0.110)	(0.109)	(0.107)	(0.107)
Intermediate secondary education with voc. training	(-)	(-)	(-)	(-)
	(-)	(-)	(-)	(-)
Higher secondary education	0.207†	0.050	0.039	0.064
	(0.112)	(0.112)	(0.112)	(0.105)
Tertiary education	0.530***	0.254**	0.240*	0.194†
	(0.096)	(0.097)	(0.097)	(0.101)
Female	0.141†	0.104	0.133†	0.186*
	(0.078)	(0.078)	(0.078)	(0.076)
Immigrant background				
No immigrant background	(-)	(-)	(-)	(-)
	(-)	(-)	(-)	(-)
1st Generation	0.338**	0.444***	0.452***	0.465***
	(0.120)	(0.119)	(0.120)	(0.119)
2nd Generation	-0.030	0.012	0.027	0.019
	(0.125)	(0.124)	(0.124)	(0.124)
Age	0.108***	0.084**	0.078*	0.087*
	(0.032)	(0.032)	(0.033)	(0.034)
Age²	-0.001**	-0.001†	-0.001	-0.001†
	(0.000)	(0.000)	(0.000)	(0.000)
Highest educational degree of parents				
Low education	(-)	(-)	(-)	(-)
	(-)	(-)	(-)	(-)
Medium education	0.099	0.061	0.038	0.043
	(0.111)	(0.112)	(0.113)	(0.109)
High education	0.285*	0.191	0.177	0.170
	(0.116)	(0.121)	(0.124)	(0.111)
East Germany, incl. Berlin	-0.319**	-0.186†	-0.169†	-0.120
	(0.098)	(0.097)	(0.099)	(0.122)
Not raised with both parents	0.063	0.088	0.084	0.174
	(0.135)	(0.136)	(0.138)	(0.129)
Marital history				
No divorce experienced	(-)	(-)	(-)	(-)
	(-)	(-)	(-)	(-)

At least one divorce experienced	-0.196*	-0.197*	-0.195*	-0.196*
	(0.092)	(0.090)	(0.089)	(0.091)
Unclear biography	-1.276†	-1.343†	-1.299†	-1.319†
	(0.756)	(0.745)	(0.697)	(0.674)
Reading competencies (WLE)		0.263***	0.227***	0.198***
		(0.031)	(0.032)	(0.031)
Perceptual speed			-0.003	-0.009†
			(0.005)	(0.005)
Reasoning			0.056**	0.058**
			(0.019)	(0.018)
Occupational status (ISEI-08)				
Currently not employed				-0.091
				(0.115)
Max 30.00				-0.117
				(0.130)
> 30.00 & ≤ 50.00				-0.015
				(0.114)
> 50.00 & ≤ 70.00				-0.185
				(0.113)
> 70.00				(-)
				(-)
Unemployment experience, in years				-0.033***
				(0.010)
Global self-esteem				0.038***
				(0.008)
Locus of control: internal				0.124†
				(0.065)
Locus of control: external				-0.235***
				(0.047)
Place of residence				
Rural area				0.162
				(0.110)
Urbanized area				0.077
				(0.088)
Urban agglomeration				(-)
				(-)
Residence continuity				
Residence in the same municipality for less than 10 years				-0.082
				(0.136)
Residence in the same municipality for 10 years or more				(-)
				(-)
No information				-0.037
				(0.089)
Regional unemployment rate				-0.001
				(0.015)

Regional proportion of foreigners				-0.003
				(0.011)
Constant	2.541**	3.114***	2.785***	1.345
	(0.788)	(0.800)	(0.813)	-1.016
Adj. R^2	0.075	0.105	0.109	0.165

Robust standard error in brackets; N = 5.316;

Source: doi:10 .5157/NEPS:SC6:8.0.0, own calculations, weighted

Significances: † p < 0.1, * p < 0 .05, ** p < 0 .01, *** p < .001

Table A2 *Logistic regression: volunteering*

Volunteering	Model 1	Model 2	Model 3	Model 4
Highest educational degree				
Max. intermediate secondary education w/o voc. training	-0.130** (0.040)	-0.118** (0.042)	-0.112** (0.042)	-0.087* (0.041)
Lower secondary education with voc. training	-0.039 (0.032)	-0.017 (0.033)	-0.010 (0.033)	-0.008 (0.031)
Intermediate secondary education with voc. training	(-) (-)	(-) (-)	(-) (-)	(-) (-)
Higher secondary education	-0.009 (0.035)	-0.036 (0.034)	-0.039 (0.034)	-0.028 (0.032)
Tertiary education	0.069* (0.031)	0.022 (0.032)	0.019 (0.032)	0.024 (0.032)
Female	-0.010 (0.022)	-0.016 (0.022)	-0.012 (0.022)	-0.019 (0.022)
Immigrant background				
No immigrant background	(-) (-)	(-) (-)	(-) (-)	(-) (-)
1st Generation	-0.075† (0.039)	-0.056 (0.040)	-0.052 (0.040)	-0.056 (0.036)
2nd Generation	-0.019 (0.033)	-0.014 (0.032)	-0.013 (0.032)	-0.007 (0.031)
Age	0.016† (0.009)	0.012 (0.008)	0.012 (0.008)	-0.005 (0.010)
Age^2	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Highest educational degree of parents				
Low education	(-) (-)	(-) (-)	(-) (-)	(-) (-)
Medium education	0.006 (0.031)	0.000 (0.032)	-0.002 (0.032)	0.008 (0.030)
High education	0.004* (0.032)	-0.010 (0.031)	-0.011 (0.031)	-0.003 (0.030)
East Germany, incl. Berlin	-0.118*** (0.023)	-0.100*** (0.024)	-0.096*** (0.024)	-0.075** (0.024)
Reading competencies (WLE)		0.042*** (0.009)	0.035*** (0.010)	0.028** (0.010)
Perceptual speed			0.002 (0.001)	-0.001 (0.001)
Reasoning			0.005 (0.005)	0.005 (0.005)

Working hours per week				
Currently not employed				0.030
				(0.034)
More than 35 max. 41 hours				0.067*
				(0.027)
Less than 35 hours				(-)
				(-)
More than 41 hours				0.115***
				(0.033)
Unemployment experience, in years				-0.016***
				(0.004)
Number of children				0.058***
				(0.013)
Locus of control: internal				-0.007
				(0.017)
Locus of control: external				-0.009
				(0.013)
Health				
Good				(-)
				(-)
Medium				-0.027
				(0.024)
Bad				-0.072
				(0.046)
Place of residence				
Rural area				0.143***
				(0.033)
Urbanized area				0.062**
				(0.023)
Urban agglomeration				(-)
				(-)
Residence continuity				
Residence in the same municipality for less than 10 years				-0.049
				(0.039)
Residence in the same municipality for 10 years or more				(-)
				(-)
No information				-0.009
				(0.024)
McFadden (adj.) R^2	0.0022	0.029	0.030	0.066

Robust standard error in brackets; N = 5.303;

Source: doi:10 .5157/NEPS:SC6:8.0.0, own calculations, weighted

Significances: † p < 0.1, * p < 0 .05, ** p < 0 .01, *** p < .001