

Does Education Cause Participation in Politics?

Mikael Persson



UNIVERSITY OF GOTHENBURG
DEPT OF POLITICAL SCIENCE

Distribution:
Mikael Persson
Department of Political Science
University of Gothenburg
Box 711
SE 405 30 Gothenburg
Sweden
mikael.persson@pol.gu.se

Does Education Cause Participation in Politics?
Mikael Persson
ISBN: 978-91-628-8824-4
<http://hdl.handle.net/2077/34121>
ISSN: 0346-5942
Print: Ineko, Kållerød.

This study is included as number 134 in the series Göteborg Studies in Politics, edited by Bo Rothstein, Department of Political Science, University of Gothenburg.

Contents

Introduction	13
References	45
Papers 1-5	55
Summary in Swedish	I–X

The introductory chapter draws in part on the following paper, published and reproduced with permission from the publisher:

Persson, Mikael. (Forthcoming). “Review Article: Education and Political Participation.” Accepted for publication in *British Journal of Political Science*. Reproduced with permission from Cambridge University Press.

The following five papers are previously published and reproduced with permission from the publishers:

Persson, Mikael. (2011). “An Empirical Test of the Relative Education Model in Sweden.” *Political Behavior*. 33: 455–478. Reproduced with permission from Springer, Part of Springer Science+Business Media.

Persson, Mikael. (2012). “Does Type of Education Affect Political Participation? Results From a Panel Survey of Swedish Adolescents.” *Scandinavian Political Studies*. 35: 198–221. Reproduced with permission from John Wiley and Sons.

Persson, Mikael. (2013). “Is the Effect of Education on Voter Turnout Absolute or Relative? A Multi-level Analysis of 37 countries.” *Journal of Elections, Public Opinion and Parties*. 23: 111–133. Reproduced with permission from Taylor & Francis, Routledge.

Persson, Mikael. (Forthcoming). “Social Network Position Mediates the Effect of Education on Active Political Party Membership.” Accepted for publication in *Party Politics*. Reproduced with permission from SAGE publications.

Persson, Mikael. (Forthcoming). “Testing the Relationship Between Education and Political Participation using the 1970 British Cohort Study.” Accepted for publication in *Political Behavior*. Reproduced with permission from Springer, Part of Springer Science+Business Media.

Dedicated to Anna, Viktor and William

Acknowledgments

Many coincidences led up to the writing of this dissertation. Having grown up outside Gothenburg, I left to study philosophy after I had finished school. I had no intention of returning and neither did I have any plan to try to become a researcher; I just wanted to study something interesting somewhere else. As it turned out I was more suited for political science than philosophy and when I had finished my undergraduate courses I still wanted to continue studying political science. However the PhD-program in Lund, where I studied, was temporarily closed, and for a while I turned to my plan B; to become a teacher. While I studied at the teacher college in Malmö, I wrote a paper in which I argued there was a need to empirically test whether education actually had all the positive effects that some of the theoretical course literature suggested (including effects on political participation). At this time, it was also an opportunity to apply to the PhD-program in political science in Gothenburg. I didn't have much time to prepare the application so I sent a revised version of the paper I had just written at the teacher college as an 'idea for a dissertation'. As fate would have it I was accepted in Gothenburg and I moved home. What started as a course paper at the teacher college grew larger and became this dissertation.

Academically, moving to Gothenburg turned out to be a good decision. I was fortunate to get Peter Esaiasson as my primary supervisor and Henrik Oscarsson as my secondary supervisor. In addition, and without any official duties, Mikael Gilljam supported me a lot and became my mentor in the academic world. Most of what I know about political science research I've probably learned from Peter, Henrik and Mikael. They generously shared their knowledge and supported me far more than they were required.

I don't dare to think about the terrible mess of a dissertation—if it had been any dissertation at all—that I would have written without the influence of Peter. I'm in great debt to him for pushing me early on to write quantitative papers in English and try to publish in academic journals. Additionally, he continuously encouraged me to raise the bar throughout the entire process, expecting nothing less than the most out of me. Peter's enthusiasm is unprecedented and he kept providing me with his right-on-the-spot comments until the last version was finished.

Henrik introduced me to the world of election studies and statistics. He was also my first academic co-author. At that time the main task for someone

working with me was to delete all the crappy text I produced. Today I certainly wouldn't like to work with the person I was then. But Henrik managed, with great patience, to teach me about the craftsmanship of paper writing and statistical analyses.

Mikael has been extremely supportive since my first day in the department. Among his many strengths, he has a great ability to write in an extremely clear, accessible and entertaining way. I'm grateful to him for doing his best to try to teach me this art, although I rarely, if ever, succeed. These years would also have been much less entertaining without all the fun times I've had with Mikael – from shaking Danes on planes to almost getting killed in waters slides. I'm also indebted to him for helping me to get funding to continue to do research in new exciting fields.

By the end of the writing process, Bo Rothstein and Staffan Kumlin provided detailed comments on the introductory chapter. Getting their perspective on the text considerably benefited the dissertation. The Swedish summary was greatly improved by detailed comments from Gissur Erlingsson. Many others have also provided feedback on the papers in this dissertation (and those persons are thanked in the acknowledgements of each respective paper), including approximately 30 anonymous referees and some journal editors.

I also wish to collectively thank all colleagues at the department in Gothenburg for providing a constructive and entertaining research environment. In particular, I'm grateful for having shared the experiences at the PhD program with a "generation" of three great people: Agnes "Lennon" Cornell, Niklas "Harrison" Harring and Johan "Ringo" Hyrén. I promise you that Paul will make his best efforts to keep the band together.

For helpful advice, support and/or interesting collaborations during my time as a PhD-student I would also like to thank Klas Andersson, Bert Bakker, Daniel Bernmar, Yosef Bhatti, David E. Campbell, Stefan Dahlberg, Carl Dahlström, Göran Duus-Otterström, Joakim Ekman, Gissur Erlingsson, Jenny de Fine Licht, Olle Folke, Anders Fredriksson, Andrew Healy, Per Hedberg, Sören Holmberg, Donald Granberg, David Hopmann, Sverker Jagers, Andrej Kokkonen, Victor Lapuente, Staffan I. Lindberg, Jonas Linde, Lennart J. Lundquist, Sofie Marien, Johan Martinsson, Daniel Naurin, Elin Naurin, Jacob Severin, Martin Sjöstedt, Erik Snowberg, Maria Solevid, Anders Sundell, Oskar Svärd, Peter Thisted Dinesen, Kåre Vernby, Michael Wahman, Lena Wängnerud, Pär Zetterberg, Patrik Öhberg and Richard Öhrvall. Moreover, I'm grateful to Sven Oskarsson and Karl-Oskar Lindgren

for giving me the opportunity to be able to continue to develop research on education and participation together with them.

During my journey in the educational system some teachers have been particularly important to me. Most importantly, my outstanding social science teacher in the gymnasium, Claes-Göran Hedlund, gave me a solid ground and provided me with the encouragement I needed to continue to study. At Lund University Maria Hedlund, Mats Sjölin and Wlodek Rabinowicz carefully supervised me and encouraged me to apply to the PhD-program.

For funding conferences and external courses I wish to thank “Adlerbertska Stipendiestiftelsen”, “Stiftelsen Paul och Marie Berghaus donationsfond”, “Kungliga och Hvitfeldtska stiftelsen”, “Kungliga Vetenskaps- och Vitterhetsamhället i Göteborg” and “European Consortium for Political Research”.

I want to thank all friends and family for fun times outside academia. I thank my mother and father for always letting me pursue precisely what I want and never putting any pressure on me. I'm grateful to my dad for having taught me to appreciate politics and discussing political issues. With a less politically interested father I would probably not have become a political scientist. While my mother doesn't share a great interest in politics, she compensated that with reading a lot of books to me. I would also like to thank my grandmother Elsie for bringing me to school during my first school-day and thereby giving me a good start in the educational system, my uncle Lennart “Guran” and all his family for always being warm-hearted, and my parents-in-law, Rolf and Lillemor, for constantly being supportive and, most importantly, teaching me how to work hard during the summers in their bakery. A special thanks goes to my grandfather Gösta. He was the most lovely, crazy and supportive grandfather anyone could have had, or as he used to say “at least the best grandfather in western Sweden”. I wish we could have smoked some cigars together and celebrated the completion of this dissertation. To his brother Lennart in Alunda I send my deepest gratitude for having been a great academic role model throughout the years.

Most important to me is of course Anna and our boys Viktor and William. You are a wonderful lovely bunch of people to live with and it is not possible to have a better family. I enjoy every day with you and I'm looking forward to continue to spend a lot of time with you (and doing some research while you are sleeping!)

Gothenburg, October 2013
Mikael Persson

Introduction

What affects who participates in politics? Many studies point out that education is of central importance. In most studies of political behavior it is found that individuals with higher education participate to a larger extent in political activities than individuals with less education (see e.g., Wolfinger and Rosenstone 1980; Rosenstone and Hansen 1993; Verba, Schlozman and Brady 1995; Franklin 2004; Schlozman, Verba and Brady 2012). In a classic text, Converse pointed out that education “is everywhere the universal solvent, and the relationship is always in the same direction. The higher the education, the greater the ‘good’ values of the variable. The educated citizen is attentive, knowledgeable and participatory, and the uneducated citizen is not” (1972, 324). The idea that education has a causal impact on participation is widely held in political behavior research. Indeed, the relationship between education and political participation is probably the single most well established relationship in the participation literature.

Why do highly educated persons participate more in political activities? In their seminal work, Verba, Schlozman and Brady (1995, 305) explain that: “Education enhances participation more or less directly by developing skills that are relevant to politics—the ability to speak and write, the knowledge of how to cope in an organizational setting”. Lewis-Beck et al. (2008, 102) point out that: “With more formal education comes a stronger interest in politics, a greater concern with elections, greater confidence in playing one’s role as a citizen, and a deeper commitment to the norm of being a good citizen”. Hence, education increases skills and knowledge which might also affect political interest and efficacy; factors that all in turn trigger participation.

But is this conventional view correct? Does education actually cause people to participate in politics? In this dissertation, I will present empirical evidence that questions this conventional view on how education is related to political participation. While education and political participation are undoubtedly correlated, I suggest that these factors are not causally related in the way that is usually assumed. As the slogan goes: correlation is not causation. Contrary to conventional wisdom, I argue that the relationship between education and participation is misinterpreted in most political behavior research.

This study is not the first to make this claim. In the last decade a number of studies have started dealing with the question of whether education

is a direct *cause* for political participation or merely a *proxy* for other factors (Nie, Junn and Stehlik-Barry 1996; Dee 2004; Milligan, Moretti and Oreopoulos 2004; Hillygus 2005; Kam and Palmer 2008; Burden 2009; Campbell 2009; Highton 2009; Sondheimer and Green 2010; Berinsky and Lenz 2011). The papers in this dissertation contribute to this debate by providing a set of analyses on how education is related to political participation.

Knowing who participates in politics is a central issue in political behavior research. Finding out which model can correctly explain the relationship between education and participation has important implications. If education has no direct causal effect, then the relationship between education and participation found in most political behavior research is misinterpreted. If we do not even know how we should explain the most frequently occurring relationship in participation research, our understanding of who participates in politics must be regarded as shallow. Hence, getting a better understanding of the relationship between education and participation is crucially important for the improvement of knowledge about the causes of political participation. As I will argue, this is not only of importance for political behavior research but it also has important policy implications and consequences for the functioning of democratic systems.

This introductory chapter will proceed as follows: The next section provides a theoretical overview, followed by a summary of the most important empirical analyses in the field. Thereafter, the five papers are summarized in brief and their collected contribution to the field is explained. Finally, the theoretical implications and the policy implications are discussed and the conclusions from the studies are summarized.

Theoretical overview

This study focuses on the driving forces on political participation. I follow the standard definition of political participation provided by Verba, Schlozman and Brady (1995, 38) according to which political participation refers to activity “that has the intent or effect of influencing government action—either directly by affecting the making or implementation of public policy or indirectly by influencing the selection of people who make those policies.” This includes acts such as voting, activities in political parties, attending political meetings, demonstrations and contact with politicians. It can also refer to acts such as political consumerism or online participation but it excludes acts such as political discussion. In this study, the focus is primarily

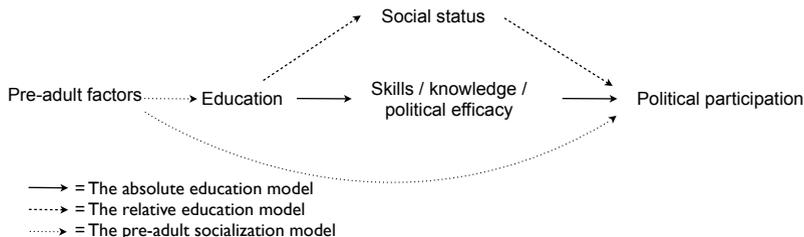
on traditional forms of participation, in particular voter turnout and party engagement.¹

With education I refer to formal education, from compulsory schooling to higher education at universities. The different studies in this dissertation look at different aspects of education, such as years of education, college education and type of education at the upper secondary level. This dissertation does not focus on informal education, training courses, etc.²

Having established the definitions of the main independent and dependent variables, what can we learn from previous research about how education is related to political participation? In the literature, three models dominate the discussion on the links between education and political participation. Following previous research, I will refer to these models as “the absolute education model”, “the pre-adult socialization model”, and “the relative education model”.

The latter of these two models regard education as a proxy for other factors not directly related to education while the first regards the educational experience as a direct cause. Figure 1 illustrates the three theoretical models.

Figure 1. Theoretical models of the relationship between education and political participation



The different models disagree on which, if any, causal mechanisms that trigger the effect of education on political participation.³ Previous research seldom discusses these three competing explanations together and there is surprisingly little communication between researchers studying the pre-adult socialization model and the relative education model. To date, there exists no study that tests all three models simultaneously. In the absence of one single source of data that could be used for a simultaneous evaluation of the three models, each of the papers in this dissertation test different aspects of the models. Taken together they clarify our understanding of the relationship between education and political participation.

The conventional view: the absolute education model

According to the absolute education model, illustrated by the solid line in Figure 1, education has a causal effect on political participation and for that reason this model is sometimes synonymously referred to as the “education as a cause view”. Education increases civic skills and political knowledge which function as the causal mechanisms triggering participation. This is also sometimes referred to as the “cognitive pathway”, i.e., what individuals learn at school has positive effects on their cognitive ability, which in turn affects participation. Most important for political participation is the increased verbal and cognitive proficiency that comes with higher education. This is because language is crucial to understanding and communicating about politics. Persons with high verbal and cognitive proficiency can more easily understand political messages and in turn articulate their own political views. In addition, education is supposed to increase political knowledge and provide a better understanding of the political system. According to this model, people who understand how the political system works will also understand the importance of participating in the system.

In addition to skills and knowledge, it has also been argued that education triggers political efficacy. Jackson (1995, 280) explains this idea: “Schooling enhances both the belief that the potential voter can influence what the government does (external efficacy) and the belief that the potential voter has the competence to understand and participate in politics (internal efficacy)”. Hence, education supposedly increases citizens’ beliefs that they can effectively play a role in the political process.

According to this conventional view, the more education individuals have, the more likely they will be to participate in politics. The model is referred to as the absolute education model since the effects of education are not dependent on the level of education in the environment. This model regards education effects as an individual level cognitive process.

Numerous studies of political participation in Western democracies confirm this view, however, most of these studies draw on cross-sectional data and the alleged causal mechanisms—mainly knowledge and skills—are seldom directly tested. Even those that stick to the view that education is a direct cause have seldom presented evidence on exactly how and through which mechanisms education influences participation. Rather, when it comes to explaining effects of education it is common to describe the mechanisms at work as “remaining hidden” or as an “un-deciphered black box” (cf. Ichilov 2003; Niemi and Junn 1998).⁴

While the literature in the field focuses primarily on skills and knowledge as the causal mechanisms it is not hard to think of other factors that might be affected by education and that in turn might trigger participation, i.e., factors such as income, wealth or health. However, an obvious problem is that these factors are likely to be strongly correlated with education and it might be difficult to test exactly to what extent each of these factors mediates the relationship. Hence, while skills and knowledge are the causal mechanisms that are most often emphasized in the literature, the relationship might flow through alternative causal pathways as well.⁵

It should also be noted that there is no consensus on whether the effect of education is linear or whether it tapers off at some point. While many researchers simply test the effects of “years of education”, others argue that it is in fact only higher education (college or equivalent) that is of major importance for participation. To make it even more complicated, studies on the impact of college education disagree on whether it is college *attendance* or college *completion* that is the relevant variable to study (cf. Kam and Palmer 2011; Henderson and Chatfield 2011).

The pre-adult socialization model

The extreme alternative to the absolute education model is the pre-adult socialization model, illustrated by the dotted lines in Figure 1. It suggests that the relationship could be explained with reference to self-selection effects; pre-adult factors affect both educational choice as well as political participation in adulthood. Education works as a proxy for factors such as family socio-economic status, the political socialization in the home environment and personal characteristics such as cognitive ability (e.g., Jennings and Niemi 1974; Langton and Jennings 1968; Kam and Palmer 2008). Hence, some refer to this as the “education as a proxy view”. Other researchers argue that factors such as intelligence (Luskin 1990), genetic factors (Alford, Funk and Hibbing 2005) or personality types affect political participation in adulthood (Mondak and Halperin 2008), and these factors could also affect educational choice. It is factors like these, rather than education that affect participation according to the pre-adult socialization model. This idea is supported by research that argues that political attitudes and behavior are formed early and change little after the “impressionable years” (cf. Sears and Funk 1999).

According to the education as a proxy view, the same pre-adult factors that encourage political participation also determine the choice of education. The problem is that the measurement of such pre-adult factors is often omitted in surveys. The pre-adult socialization model suggests that when pre-

adult factors are not included in statistical models of the causes of participation, education will take credit for these unmeasured pre-adult covariates. Hence, the significant coefficients of education are often misinterpreted as a direct effect while they are only a proxy for other factors.

The education as a proxy view goes back to Langton and Jennings's (1968) seminal study, which showed null results regarding the impact of civic education courses on political participation. However, since education repeatedly showed a strong impact on participation in cross-sectional studies, scholars regarded education as a major influence on political participation (Converse 1972).

The implications of the pre-adult socialization model are drastic. If correct, results from most studies on political behavior that include education as a main independent variable are misinterpreted since the content and length of education is irrelevant. It is not the skills and knowledge gained through education that matter but rather unmeasured pre-adult factors that produce the effects. In addition, there is no room for state intervention in encouraging citizens to participate in politics if this model is correct.

The relative education model

Now, let's turn to the third model. The relative education model, which is synonymously referred to as "the sorting model", offers a revisionist view. It takes a different causal path than the two other models, as illustrated with the dashed arrows in Figure 1. According to the sorting model, there is an indirect effect of education on political participation via social status (Nie, Junn and Stehlik-Barry 1996). Within this literature, high social status is defined as having a central social network position in society.

The relative education model has been presented as a potential solution to one of the major puzzles in political behavior research: the paradoxical relationship between education and participation at the micro- and macro-levels. On one hand, many studies claim that education has a positive impact on participation at the individual level; but on the other hand, increased levels of education at the macro-level do not seem to increase aggregate levels of political participation (Brody 1978; Schlozman, Brady and Verba 2012). Therefore, while many studies have shown that at any given time people with higher education participate to a larger extent in political activities, it does not appear that an increasing level of education in the population as a whole, leads to an aggregate increase in political participation. Delli Carpini notes that: "researchers have noted this paradox but have largely addressed it by assuming that other societal changes (the weakening of political parties, the

erosion of civil society, the increased complexity of politics, the declining quality of education, the growing dominance of television as a source of political information, and so forth) have worked to cancel out the positive effects of education” (1997, 972).

Instead of referring to other factors that might be canceling out the positive effects of education, Nie, Junn and Stehlik-Barry try to solve the paradox by providing an alternative way to understand how education is related to participation. While this model was first applied to education effects on political participation in their 1996 book *Education and Democratic Citizenship in America*, similar theories have been used in, for example, labor market studies. In this context, the argument was made by Fred Hirsch, who argues that as educational levels rise, “the effect will be to push competition by hitherto qualified applicants down the hierarchy of jobs” (1978, 50). According to Nie, Junn and Stehlik-Barry, it is the social status and not the educational content received that increases participation. This means that education should be seen as a “positional good”, i.e., something that is “valuable to some people only on condition that others do not have it” (Hollis 1982, 236).⁶

According to the relative education model, individuals with a high social status are exposed to networks that encourage participation and they are also more likely to be recruited into political activities. Conversely, individuals with lower levels of education are outside recruitment networks (cf. Verba, Schlozman and Brady 1995). Franklin’s discussion of the costs and benefits of voting illustrates this idea: “People in social networks would also incur costs of nonvoting because other members of their group care whether they vote or not ... So, the benefits of voting and the costs of nonvoting are higher for socially connected people” (Franklin 2004, 51). Obviously, it is not only the “social status” of the networks that matter but also which particular people who make up the networks and to what extent these people might trigger participation.

An important implication of the sorting model is that the same amount of education at the individual level has a different impact on political participation depending on the level of education in the environment. In a low education environment, less education at the individual level is needed in order to gain a central social network position. Conversely, in places with a lot of highly educated persons, higher levels of education are needed to get high social status. This could also be illustrated by the trends over time; for example, as more people obtain higher education, the social status of a college

diploma is reduced in relative terms. Hence the impact of education on political participation is hypothesized to be relative rather than absolute.

An underdeveloped area in this field is *how* social networks mediate the relationship between education and participation. Nie, Junn and Stehlik-Barry employ a narrow definition of social network position since it only takes into account relations to people active in politics and media. However, in research on social networks, the size and composition of the social networks are seen as central. More specifically, the range of people (e.g., Mutz 2002; McClurg 2003; Siegel 2009) and size of the networks (e.g., Kotler-Berkowitz 2005) matter for participation. Drawing on this literature this dissertation will test the refined hypothesis that having strong ties to a large and wide network of high-status persons mediates the relationship between education and participation.

Summary of the theoretical models

To sum up the theoretical overview, the reason why previous research has had problems determining whether a causal link between education and political participation actually exists is due to the difficulties in testing the three potential explanations empirically. The central question concerns whether the relationship is causal or merely a correlation. The three models can be summarized as follows: a) the correlation exists due to self-selection processes and education is only a proxy for pre-adult factors, b) education actually has a causal effect on political participation primarily via the causal mechanisms skills and knowledge, or c) social status gained by relative education affects participation. In other words, the relationship can be explained with reference to a) self selection processes *before* education is acquired, b) skills and knowledge gained *while* education is being acquired, or c) the social network position gained *after* education is acquired. All three competing explanations are seldom discussed together in previous research and there is surprisingly little communication between researchers studying the pre-adult socialization model and the relative education model.

Literature review: empirical results

Methodologically, it is a difficult task to estimate the causal effect of education. In one-shot cross-sectional observational studies the causal effect of education is hard to isolate due to confounding factors, i.e., variables possibly related to both education and participation. In studies of causal relationships, randomized experiments are the gold standard for estimating causality (Gerber and Green 2012). Hence, in this case an ideal research design would randomly assign persons to receive different levels of education. However, such

a research design could obviously never be implemented. Even if it would be possible to randomly distribute scholarships for higher education it would be hard to ensure that everyone participated in such an experiment. Likewise, it would not be possible to hinder those who were assigned to the control group from receiving education. In addition, such an experiment would raise ethical questions and would probably be impossible to justify morally.

What is left is the possibility of estimating the effect from observational studies and quasi-experimental situations. Even though we lack fully randomized experiments we can still get some answers by following persons over time in panel studies, exploiting natural experiments like educational reforms, using statistical tools designed to estimate causal relationships from observational studies and by exploiting regional differences and differences over time. Such studies can provide us with valuable knowledge on how education is related to political participation. Here follows a review of the most important empirical contributions to the debate.

Education as a cause vs. education as a proxy

Recently some studies have begun to use the aforementioned techniques to gauge whether education is a direct cause (the absolute education model) or a proxy (the pre-adult socialization model) of political participation. These studies include applications using techniques such as instrumental variable approaches (e.g., Berinsky and Lenz 2011), field experiments (e.g., Sondheimer and Green 2009), and matching analyses on panel data (e.g., Kam and Palmer 2008; Tenn 2007).

The education as a proxy view has been supported in a number of these studies. Pelkonen (2012) uses the natural experiment of an education reform in Norway, initiated in 1959, that increased the length of compulsory education to gauge the causal effects of education on political participation. This reform was implemented quasi-randomly at different times and in different areas of Norway. Pelkonen uses both individual level data and data at the municipality level, both of which show no effects of education on different participatory acts such as voting, contacting political representatives and demonstrations (with the exception of a significant effect on signing petitions). Given the solid research design—the quasi-experiment is a strong identification strategy—the results should be regarded as strong evidence in favor of the pre-adult socialization model.

Berinsky and Lenz (2011) arrive at a similar conclusion by using the natural experiment of the Vietnam-era draft in which young males were randomly assigned to the military by draft lotteries. It was possible however,

to bypass the system since those who went to college could defer military service; hence the draft lottery functioned as an exogenous shock on educational attainment. Berinsky and Lenz find little evidence that increased educational attainment positively affected political participation. Results from this study weigh heavily since it has the advantage of a randomly assigned exogenous shock that affects educational attainment. A problem with this study however, is that there might be a bias in the distribution of the treatment towards (male) persons who wanted to avoid military service; the treatment is not distributed equally across the population.

Kam and Palmer provided the first study that used matching techniques to evaluate this question. Matching can be used to control for the selection into education and thereby mirroring an experimental design (Rubin 1973; 1974). When using this method, persons with higher education, which are as similar as possible on all relevant covariates, are matched with less educated persons. Kam and Palmer applied propensity score matching to two studies from the United States. They did not find any significant differences in participation between college attendees and non-attendees after matching.

Kam and Palmer were criticized in two independent works. Henderson and Chatfield (2011) as well as Mayer (2011) argue that a main problem in Kam and Palmer's analyses is that the groups of college and non-college persons remained very different even after matching. To obtain better balance between the "control group" and "treatment group", Henderson and Chatfield as well as Mayer use genetic matching which is a superior technique. Henderson and Chatfield (2011, 647) conclude that "selection may be so problematic as to make it practically impossible to recover unbiased causal estimates using even the most sophisticated matching methods as yet available". Mayer (2011, 644) is more positive regarding the possibility of obtaining causal estimates from matching and concludes that his analysis shows "evidence that postsecondary educational advancement has a positive and substantively important causal effect on political participation". The debate continued when Kam and Palmer (2011, 661), in a response, reanalyzed one of their datasets that confirmed their initial results as well as showed that when using genetic matching, balance could be achieved.

However, there are also a number of recent studies showing evidence indicating that education actually has a direct causal effect. Sondheimer and Green (2009) exploit three field experiments in which different interventions affecting educational attainment were randomly assigned to different students (i.e., smaller classes, extra mentoring, and pre-school activities). Students who experienced these treatments had a higher probability of graduating from high

school. In this study, which particularly focuses on voting, strong support is found for the education as a cause view. A shortcoming of the study is that randomization was not made among the entire population, or a representative sub-sample, but directed primarily to students with a low socio-economic status. The generalizability of the results is therefore unclear; it might be the case that the effect of education is stronger for low socio-economic status students than among the population in general.

Milligan, Moretti and Oreopoulos (2004) use compulsory schooling laws as instrumental variables. They show that completion of high school has a positive impact on voting in the United States, while it has no effect in Britain. However, after controlling for registration requirements, the effect of education in the United States is considerably reduced. The reason why this study comes to different conclusions in the United States and Britain remains unclear.

The study by Dee (2004) also uses the adoption of school leaving laws as an instrumental variable to gauge the causal effects of education in the United States. In addition, he also uses geographical distance to colleges as an instrument for education. Dee's analyses indicate that education has a positive impact on voting and also increases the support for free speech and civic knowledge. However, both instrumental variable approaches used are problematic. As for distance to college, it could reasonably be suspected that the place of residence is correlated with other unmeasured factors influencing participation. Regarding the child labor laws it is unlikely that changing child labor laws provide an exogenous shock on educational attainment that is proportionally spread among the population. It is reasonable to expect that changes in child labor laws primarily affect students from homes with a low socio-economic status, so it does not correspond to a treatment that would be distributed equally throughout the population.

While the studies of Sondheimer and Green, Milligan Moretti and Oreopoulos and Dee use solid research designs exploiting exogenous shocks on educational attainment, they are still far from the ideal experimental design. It must also be pointed out that none of these studies say anything about *how* (i.e., through which causal mechanism) education affects participation. They do not confirm that the effect runs along the hypothesized cognitive pathway.

This survey of the field shows that studies using sophisticated designs to trace causality are not in any agreement on whether education causes political participation. Rather, this is an unsettled issue in which different studies show contradictory results. On both sides there exist studies with solid research designs showing support for the different models.

The fourth paper in this dissertation will contribute to this discussion by presenting a matching analysis that aims to mimic an experimental test of the causal effect of college education. This analysis will use a richer source of data with more comprehensive pre-adult measures than used by previous studies.

The impact of type of education

The literature on whether education functions as a cause or proxy for political participation has largely focused on the effects of length of education. However, there are other relevant dimensions of education as well. One important field of research has looked particularly at the effects of civics courses. The panel study by Langton and Jennings (1968) is the most important contribution to this field. They found that civic education courses did not affect civic outcomes. However, Niemi and Junn (1998) later challenged this conclusion by showing that civic education actually had a positive impact on civic outcomes, in particular civic knowledge (see Denver and Hands (1990) for a similar argument using data from Britain). Recent evidence from Kenya provides further evidence of the positive effects of civic education courses on political participation (Finkel, Horowitz and Rojo-Mendoza 2012).

Looking more broadly at the impact of type of education, it is a frequently occurring argument that different educational tracks lead to different patterns of political behavior and attitudes. In the Swedish case, several studies have found significantly higher levels of participation among individuals from theoretical gymnasium tracks (academic upper-secondary tracks aiming to prepare students for further studies at universities) compared to students with education from vocational gymnasium tracks (Ekman 2007; Öhrvall 2009). In addition, Westholm et al. (1990) showed that students from vocational tracks had significantly lower levels of political knowledge than students from the theoretical tracks. A similar pattern is occurring in several other countries such as Norway (Lauglo and Øia 2006), Italy (Losito and D'Apice 2004) and Belgium (Quintelier 2008). In addition, a cross-national study by Van de Werfhorst (2007), which covers 17 countries, shows that students from vocational tracks were less politically active than students with theoretical educations. Yet, all this evidence comes from observational studies that cannot say whether the relationship is causal.

The Persson and Oscarsson (2010) study used the natural experiment of the Swedish reform of the Swedish gymnasium (upper-secondary school) to analyze the effect of type of education on political participation. In the mid-1990s an extensive reform of the Swedish educational system was initiated to

create a “school for everyone” which intended to function like a “social equalizer”. The new unified gymnasium initiated longer vocational educational tracks with an extended curriculum of social science courses. Given the importance ascribed to social science courses in previous research, this could be hypothesized to have positive effects on political participation. Trends in participation among students before and after the reform can provide some evidence on the potential effects of the reform. However, the reform of the Swedish gymnasium did not produce the hypothesized positive effects on political participation. Significant differences in political participation between students from different tracks remained after the reform.

Other studies focusing more broadly on type of education also find significant correlations with political participation. Using British longitudinal data, Paterson (2009) finds positive relationships between political participation and taking social science courses at universities. The best study on the impact of type of college education in the United States (Hillygus 2005, 38) finds that “students who concentrated their studies in biology, chemistry, engineering and the like appear less inclined to participate politically, while those in the social sciences and humanities are more likely to vote and participate in other forms of political activity.” This study is especially interesting since it suggests a causal mechanism; curriculums that develop civic skills are those which have the strongest impact on participation (Hillygus 2005; also see Nie and Hillygus 2001). A similar pattern has also been found in later studies. Niemi and Hanmer’s (2010, 319) study of voter turnout among American college students showed that those who study mathematics, science and engineering voted less often than those who study subjects such as social science and humanities. Hence, it is fairly well established that there is a correlation between social science courses and political participation. But there is a lack of studies using solid research designs to estimate whether the type of education has causal effects on participation. Indeed many studies point in the direction that social science education, or academic tracks in general, might have positive effects on political participation. But the results from most studies discussed in this section however, could be consequences of self-selection processes.

The fifth paper in the dissertation aims to bring some new knowledge to this sub-field by testing whether different tracks in the Swedish gymnasium (students aged 16 to 19) affect intentions to participate, using a panel study design.

It should also be mentioned that there are other dimensions of education that could possibly affect future political participation, such as the quality of

education, teaching styles, etc. However, such studies are very rare. Hillygus (2005) shows that the quality of the educational institution has insignificant effects on participation. When it comes to the impact of teaching styles, Campbell (2008) shows that American students who are experiencing an open classroom climate show higher levels on several civic outcomes, including that they are more likely to vote in the future. In a Swedish study Andersson (2012) shows that “deliberative teaching” has beneficial effects, especially on students with low socio-economic status, on a range of outcomes including readiness for political participation. The papers in this dissertation do not bring any new evidence regarding the effects of factors such as quality of education, teaching styles, etc. Persson (forthcoming) however, replicates the ideas from Campbell’s (2008) study in the Swedish case with a panel study design and confirms the beneficial effects of an open classroom climate on political knowledge. Additionally, Esaiasson and Persson (forthcoming) present evidence on the civic outcomes of political science education.

Previous research on the relative education model

The relative education model proposed by Nie, Junn and Stehlik-Barry (1996) suggests that social status is the causal mechanism connecting education and political participation. According to them, the impact of education is relative rather than absolute. This means that the value of education depends on how many others possess it. The provocative implication of the model is that, when it comes to its relation to political participation, education is only a proxy for social status; it is not the skills or knowledge gained through education that matter. Using American data Nie, Junn and Stehlik-Barry empirically test the relative education model and find support for it on a broad range of participation types. They find that the aggregate level effect of education is negative and discounts the positive effect of education at the individual level, which could possibly explain the paradox of participation. Educational inflation is thus hypothesized to be the reason why higher aggregate levels of education have not resulted in higher aggregate levels of participation: “More education does not change the nature of the hierarchy; rather, it simply shifts the baseline upward” (Nie, Junn and Stehlik-Barry 1996, 106).

A handful of studies, all concentrated on the US case, have pushed this sub-field forward and developed the relative education model (see Campbell 2013 for a review). Several aspects of the model have become contested. First and foremost, studies in the wake of Nie, Junn and Stehlik-Barry disagree on the scope of the model. Nie, Junn and Stehlik-Barry claim that all types of participation are affected by education in a relative rather than an absolute

way. The reason for this is that they consider participation to be a zero-sum game: “The instrumental behaviors and cognitions of political engagement can be seen as more of a zero-sum game, bounded by finite resources and conflict, where one’s gain will necessarily be another’s loss” (Nie, Junn and Stehlik-Barry 1996, 101).

Campbell (2009), by contrast, suggests that some forms of participation are not competitive in character. Hence, it is unclear why the relative education model should be relevant to all forms of political participation and Campbell argues that the model is only valid for forms of political participation that are actually competitive and social in character.

There is also disagreement on how to test the relative education model. The disagreement concerns how to define the “educational environment”. In the original work of Nie, Junn and Stehlik-Barry, each person’s educational level is compared with the mean national levels among individuals aged 25–50 when the respondent was 25. A serious problem with this model specification is that it is not possible to separate the impact of the educational environment from the impact of age and year of birth (cf. Tenn 2005). Additionally, it does not take geographical variation into account. Helliwell and Putnam (2007) try to overcome these problems in their study by using narrow geographic units. More precisely, Helliwell and Putnam (2007, 3) compare each respondent’s education to “all other living adults, both older and younger” within the same geographical unit. Helliwell and Putnam focus only on social capital and find no support for the relative education model, however, since Helliwell and Putnam’s relative education measure is correlated with geographic region, it is impossible to control for state-level variations. In the study by Tenn (2005), intra-birth cohort measures of the educational environment are used to test the relative education model on voter turnout in the United States. Tenn defines relative education as each individual’s education compared to the mean level of education of everyone born in the same year (throughout the United States), but again, a problem with this kind of measure is that it does not consider geographic differences. However, the results from Tenn’s study provide strong support for the relative education model. Campbell’s (2009) study tries to overcome the problems associated with the previous studies by narrowly defining the educational environment as for *both* age and place. Campbell claims that since social status is formed in relation to one’s personal contacts, the local geographical context needs to be taken into account. Campbell finds support for the relative education model on competitive forms of political participation, including “electoral activities”.

In sum, a number of studies have found empirical support for the idea that the effect of education is relative rather than absolute. However, there is no agreement on the scope of the model nor how the educational environment should be operationalized. Further studies would benefit from implementing better ways to measure the “educational environment” and thereby separating the effects of relative and absolute education.

Summary of the literature review

Taken together, what can we learn from the state of the field? It is a frustrating fact that studies with equally strong research designs point in different directions. Studies using randomized field experiments, instrumental variable approaches and matching techniques show support for the idea that education is a direct cause for participation (Dee 2004; Milligan, Moretti and Oreopoulos 2004; Sondheimer and Green 2010; Mayer 2011). However, other studies using natural experiments in the form of education reforms, randomized shocks such as the Vietnam-era draft and matching analyses show support for the education as a proxy view (Kam and Palmer 2008; Berinsky and Lenz 2010; Pelkonen 2012). Hence, it is not the case that studies using strong research designs show support only for one side rather than the other. The literature provides a frustrating, divided picture and we are left without a clear answer as to whether education causes political participation. In addition, a number of studies complicate the discussion further by arguing that the effect of education is relative rather than absolute.

The papers in brief

The overarching research question of this dissertation is how education is related to political participation. Unfortunately the theoretical models presented are not possible to test in one single study since one single dataset does not exist that makes possible a simultaneous evaluation of the three models. For that reason, the papers in this dissertation test different aspects of the three models. For each research questions presented I try to use the best data available and the most suitable research design and statistical analyses. Hence, the papers draw on a variety of data sources: the Swedish National Election Studies, the Swedish SOM surveys, the Comparative Study of Electoral Systems, the European Social Surveys, the 1970 British Cohort Study and original data collected by the author. Additionally, in order to use the most suitable statistical analyses for each research question, the papers employ techniques such as regression analyses, multilevel modeling, structural

equitation modeling, panel data analyses and genetic matching. Each of the papers brings parts of evidence to the puzzle. Taken together they clarify our understanding of the relationship between education and political participation.

The first three papers test different aspects of the relative education model. The first paper tests the relative education model in Sweden, a more egalitarian and homogenous context than the United States that constitutes a hard test case for the model. The first paper deals with the research question: Is the relative education model supported in the Swedish context?

The second paper deals directly with the causal mechanism: Does social network position mediate the effect of education on political participation? The second paper is the first to present a solid test of the causal mechanism using structural equation modeling.

The third paper brings the discussion on the relative education model further by providing it with the first country comparative test using data from 37 countries. Hence, it deals with the research question: Is the effect of education on political participation absolute or relative in a comparative perspective? These three papers mainly present evidence in favor of the relative education model over the pre-adult socialization model.

The last two papers deal with the pre-adult model versus the absolute education model. The fourth paper uses matching on data from the United Kingdom to mimic an experimental test of the causal effect. It deals with the question: Is college education a cause or a proxy for political participation? This paper brings the important contribution of using a more extensive set of pre-adult covariates than previous studies, including important information on childhood cognitive ability.

The fifth paper moves from studying the length of education to test the impact of the type of education. It presents a panel study following Swedish adolescents over time during their first year in the gymnasium in order to answer the question: Does type of education affect political participation? The findings of both paper four and five point in favor of the pre-adult socialization model; education seems to be a proxy rather than a cause for political participation. Here follows a more detailed summary of the papers.

Paper 1. An empirical test of the relative education model in Sweden

The first paper evaluates the predictions of the relative education model using Swedish data and it therefore provides the first in depth evaluation of the relative education model outside the US (Persson 2011). Despite the fact that

the paradox of participation and education is valid in most Western countries, the relative education model has previously only been tested on data from the US. This paper examines whether education affects political participation through sorting mechanisms in the European context as well, and if so, where and when sorting processes operate. An examination of the relative education model is provided by an analysis of data from the Swedish National Election Studies (SNES) from 1985 to 2006 in combination with detailed census data from Statistics Sweden.

In this case, the most important difference between Sweden and the United States is the greater amount of equality in Sweden. The level of equality is of interest in relation to the relative education model because it is reasonable to expect that the model will receive less support in societies that have high levels of equality. Nie, Junn and Stelvik-Barry claim that what matters for political participation is the position in the educational hierarchy and they do not provide any discussion as to how the distance between the positions in the hierarchy affects the applicability of the model. I hypothesize that the relative education model should gain more support the more unequal a society is. In a society where there is a large amount of inequality, there are also larger distances between social networks—it is harder for those with low levels of education to access the social networks that are most important for gaining political influence. Low levels of social stratification may make it easier for the disadvantaged to participate in politics. For that reason, I hypothesize that Sweden constitutes a harder test—a less likely case—for the relative education model.

Here another important difference between the contexts should also be emphasized: the Swedish educational system has been explicitly designed to achieve egalitarian values, such as promoting social equality (Rothstein 1996; Meghir and Palme 2005). Since the Swedish educational system is more egalitarian, education may have a weaker impact on social networks, which in turn would imply that the hypothesized pathway between relative education and political participation via social network centrality is less evident in Sweden than in the United States.

Moreover, the pathways of recruitment to political assignments in Sweden are very different compared to those in the United States. As in most countries, the members of the Swedish parliament constitute an elite group with higher education than the electorate (Esaïasson and Holmberg 1996). However, in Sweden there has been a close link between the dominant party—the Social Democratic Party—and the working class movement. The working class movement constitutes an alternative pathway to political participation

that has no counterpart in the United States, which should reasonably dampen the importance of education on participation.

The paper also brings a contribution to the debate on the scope of the model. Remember that Nie, Junn and Stehlik-Barry claim that the relative education model is valid for all forms of political participation while Campbell (2009) argues that there is reason to believe that not all forms of participation are affected by relative education. Since not all forms of political participation are socially based and affected by recruitment via social networks, we only have reason to expect that the relative education model is valid on the social and competitive forms of political participation. Likewise, in an early contribution to the debate Huckfeldt (1979) argued that socially based forms of political participation are strongly affected by contextual factors (such as social network composition), whereas individually based forms of participation are not affected by contextual factors whatsoever.

In this paper, the predictions derived from the relative education model are tested on four indicators of political participation: writing letters to political representatives, voting, political party activities, and party membership. Support is found for the relative education model on voting and activities related to political parties, whereas the model is not supported when it comes to writing letters to political representatives. Hence, the relative education model is, at least partially, supported in the Swedish context as well. Campbell's view is confirmed from the evidence of relative education effects on the socially based forms of participation under study (activities and membership in political parties) and the absence of relative education effects on an individually based form of participation (writing letters to political representatives).

The final contribution of the paper regards how to operationalize relative education. In this paper, three different units of aggregation for the educational environment are evaluated: (a) both age and place are aggregated narrowly; (b) age is aggregated widely and place is aggregated narrowly; (c) age is aggregated narrowly and place is aggregated widely. By using these three definitions we can trace where sorting processes operate. The relative education model is supported for political party activities and party membership when defining the unit of aggregation for educational environment widely with regards to age and narrowly with regards to place. When it comes to voting however, support for the sorting model is found when applying any of the three different units of aggregation for the educational environment.

Paper 2. Social network position mediates the effect of education on political participation

The second paper offers a refined test of the relative education model (Persson 2015). Previous research on this model has focused primarily on testing the observable predictions derived from the model. The hypothesized causal mechanism—social network position—has not been sufficiently tested. Although a small number of studies have re-examined and refined the relative education model following Nie, Junn and Stehlik-Barry, all of them focus on the observable implications derived from the model, i.e. whether the effect of education at the individual level is conditioned on the level of education in the environment (Campbell 2009; Helliwell and Putnam 2007; Tenn 2005).

This paper employs Swedish survey data from the SOM Institute with more comprehensive measures on social connections than has previously been used in prior research. It looks specifically at activities in political parties as the dependent variable. The main reason for the lack of research on the causal mechanism is the absence of high-quality data on social network connections together with measures of the dependent and independent variables. To date, the only study examining the indirect effect of education via social network position is Nie, Junn and Stehlik-Barry's (1996, ch. 4) original study, in which they use data from the 1991 Current Population Survey. They use an additive scale constructed of the number of high-status people that the respondents say they know. Simple regression path models are used to estimate the indirect effects of education via those social network connections. They find that social network position (and verbal cognitive proficiency) explains almost the entire relationship between education and voting and that social network position is the main factor determining participation in "difficult political activities".

However, Nie, Junn and Stehlik-Barry's path analyses are problematic for several reasons. First, they do not perform any significance tests of the indirect effects and thus leave it an open question whether education has a significant indirect effect via social network position. A second problem is that Nie, Junn and Stehlik-Barry's measure of social network position includes only connections with elected officials and persons working with the news media. This problem concerns the causal direction in the model. It is not obvious that these connections are consequences of education (as the sorting model states); they can also be consequences of political participation.

A third problem is that in Nie, Junn and Stehlik-Barry's study, social network position is treated as a manifest variable defined as a simple additive index rather than a latent variable. The more sound approach employed in

this paper is to treat social network position as a latent variable in a structural equation model that allows the different indicators to vary in their contribution to the measure.

As mentioned earlier, previous studies on the relative education model provide little information on *how* social networks mediate the relationship between education and participation and what aspects of social networks are important. Nie, Junn and Stehlik-Barry (1996, 44) define social network centrality as “proximity to governmental incumbents and political actors who make public policy and to those in the mass media who disseminate and interpret issues, events, and activities of people in politics”. This is a narrow definition of social network position since it only takes into account friendship relations to two sorts of people.

Research on social networks and political participation can help us refine this part of the model. The size and composition of the social networks are seen as central in determining the effects on political participation. Usually research in this field emphasizes social connections to a wide range of people (e.g., Mutz 2002; McClurg 2003; Siegel 2009). Research has also found that large networks have a strong positive effect on participation: the more people you know, the broader your opportunities for recruitment (e.g., Kotler-Berkowitz 2005). More precisely, we arrive at the refined hypothesis that having strong ties to a large and wide network of high-status persons mediates the relationship between education and political participation.

The data used in this paper measures the social connections of people with 20 different occupations, such as lawyers, members of the national parliament, professors, journalists, etc. These indicators were used to construct the latent variable for social network position in the analysis. Structural equation modeling is used to test the indirect effect of education via social network position on active political party membership. The results indicate that the causal path proposed by Nie, Junn and Stehlik-Barry’s relative education model is confirmed. The effect of education is significantly mediated through social network position.

Paper 3. Is the effect of education on voter turnout absolute or relative? A multi-level analysis of 37 countries

The first two papers focus on the Swedish case and from other studies we know that the relative education model has been supported in the United States as well (Persson 2013). However, what about other countries? Nie, Junn and Stehlik-Barry claim that their model is universally applicable but they do not provide empirical evidence that their model resolves the paradox

between education and voter turnout in countries other than the United States. The present paper tests the wider generalizability of the model and goes beyond previous research by using comparative survey data. It combines data from the Comparative Study of Electoral Systems and European Social Survey covering about 275,000 individuals over 173 country-years in 37 countries. This paper looks at voter turnout as the dependent variable, a variable that studies from the United States and Sweden previously have shown is affected by relative education.

The paper presents a refined modeling strategy for relative education, relying on country-comparative intra-birth cohort measures. A problem with the comparative data is the lack of a valid measure of years of education that is equivalent in the 37 countries. In order to model relative education using this data, we need a measure that relies on the categories of education that are reported in the datasets. Thus, a modeling strategy similar to the one applied by Tenn (2005) is used. A measure is calculated of each respondent's percentile rank position, in the education hierarchy, within each respondent's five-year cohort, in each country, at the time of each survey.

Logistic multi-level regression modeling is employed in which the nested three-level structure—individuals (*i*), within country-years (*j*), within countries (*k*)—is explicitly modeled. The results show that when taking the relative education measures into account, the effect of absolute education is reduced considerably. In contrast, the relative education measures have strong and significant effects.

One further issue that previous research on the relative education model has not dealt with is whether the effect of relative education is different in different contexts. According to the so-called “law of dispersion”, formulated by Tingsten (1937), the level of equality in political participation is higher when the level of voter turnout is higher. Consequently, political inequality will increase as voter turnout decreases. If this theory holds it would suggest that differences in turnout between citizens with different levels of relative education should be larger when aggregate turnout is lower and that the differences should be smaller when aggregate turnout is higher. The empirical analyses show that, as could be theoretically expected, the difference between individuals with high and low relative education is largest when turnout is low and the difference is smaller when turnout is high, albeit the difference remains statistically significant also at the highest levels of aggregate turnout.

Paper 4. Testing the relationship between education and political participation using the 1970 British Cohort Study

The fourth paper tests the pre-adult socialization model versus the absolute education model (Persson 2014). This paper engages in the current controversy regarding the application of matching techniques to assess whether there is a direct causal effect of education on political participation. Genetic matching is used to test the causal effect of higher education (bachelor's degree or higher) on five forms of political participation (voting, demonstrations, signing petitions, political meetings and contacts with politicians).

The basic idea behind matching is simple in this case: to match persons with low levels of education that are as similar on all relevant covariates as possible with persons with higher education (Rubin 1973; 1974). If this is done successfully, comparing individuals similar on all relevant covariates, except for the treatment variable, is equivalent, at least logically, to comparing individuals randomly assigned to different treatments in an experiment (cf. Dehejia and Wahba 2002). The main benefit with genetic matching is that it employs a search algorithm that iteratively checks the balance and improves it automatically (Diamond and Sekhon 2012).

Matching is superior to standard regression models because when treatment and control groups are unbalanced and do not overlap, a simple regression model will not produce a valid estimate of the average causal treatment effect. When there is limited overlap the estimates will not capture the effect of the treatment in non-overlap segments of the data (cf. Gelman and Hill 2007).

The paper uses data from the British Cohort Study that follows everyone born during one week in April 1970 in the United Kingdom. Turning to the British context is primarily for pragmatic reasons; this is where we can find a high quality panel-study that includes a rich set of variables that measure factors in childhood and adolescence such as cognitive ability, family socio-economic status and cultural activities. This data gives the opportunity to match on a number of important variables that are not included in the US datasets that were used by previous studies in the field. Most important is the data on cognitive ability; individuals with high cognitive ability are more likely to achieve higher education (e.g., Belley and Lochner 2007) and might also be more likely to participate in politics. The data includes test scores from cognitive ability tests at age five and age ten.

In the original unmatched data we find, as expected, that individuals who have achieved a bachelor's degree or higher participate in politics to a higher extent than those with lower educational qualifications. However, after matching, the differences are considerably reduced and not statistically significant. In other words, we cannot detect any effect of education after matching and thus the results suggest that education should consequently be regarded as a proxy rather than a cause for political participation. Hence the study confirms the pre-adult socialization model, i.e., that education is a proxy rather than a cause.

A series of robustness checks and sensitivity tests are carried out, including bias simulations, placebo tests, balance checks and alternative matching routines, which strengthens the confidence in the results.

Paper 5. Does type of education affect political participation? Results from a panel survey of Swedish adolescents

While the previous papers in the dissertation deal with length of education, this paper shifts focus to type of education (Persson 2012). As mentioned in the literature survey, in several countries there is a gap in political participation related to different types of education at the upper secondary level. In Sweden for example, individuals with theoretical gymnasium education show significantly higher levels of political participation than individuals with vocational education. However, previous studies on this issue draw exclusively on one-shot cross-sectional data. The paper deals with the question whether different educational tracks lead to different levels of participation or if the correlation between type of education and political participation is the result of self-selection.

This paper reports findings from a Swedish one-year panel survey among adolescents, which is an original dataset collected by the author. Approximately 500 Swedish students were followed during their first year in the gymnasium. The first wave of the survey was conducted after the respondents graduated from comprehensive school, wherein they all shared the same curriculum. Hence, the panel study takes advantage of a crucial moment of educational choice that allows us to compare intended political participation even before different types of education were acquired.

The results show that there are already significant differences between students from theoretical and vocational tracks, in regards to political participation intentions, at the first wave of the study. This significant difference remains at the second wave. In other words, these differences appear already as students enter different educational tracks and the type of

education cannot reasonably have had any effect at this time. Moreover, the size of the gap in intentions to participate in political activities between students from theoretical and vocational tracks does not change significantly during the first year of study in the gymnasium. Results show that instead of factors related to education, factors such as the amount of political discussion at home and/or the number of books at home, positively affect participation. The socio-economic status of the family affects both intention to participate in politics and educational choice.

Implications of the findings

Having presented the theoretical foundation and empirical results, it is time to discuss the implications of the findings. In this section, I will first discuss how the papers fit together and the collected contribution to the field. Thereafter the implications for political behavior research are discussed. The next section discusses the implications for the functioning of the democratic system and the policy implications. Finally, prioritized areas for further research are discussed.

How the papers fit together and what we can learn from them

Taken together, what can we learn from these five papers? The first three papers test the relative education model versus the absolute education model and find support for the relative education model. The papers show evidence that the relative education model is valid in a hard test case like Sweden, that social network position works as the causal mechanism and that the model gets support in a comparative perspective as well. The second two papers test the pre-adult socialization model versus the absolute education model and find support for the pre-adult socialization model. The empirical applications suggest that, contrary to what could be expected from previous studies, there is no causal effect of higher education on political participation in the United Kingdom and type of education in the Swedish educational system does not affect intentions to participate. Taken together, the papers provide little evidence that education is a direct cause for participation. Thus, they all challenge the conventional wisdom regarding effects of education on participation.

Do the papers contradict each other? Not necessarily, but it is a major drawback that all three models cannot be tested in the same study. However, as indicated previously, such data (that includes measures of pre-adult factors, education variables, social network indicators and measures of political

participation) is not available. At this stage of research we simply do not know what the result would be if all models could be tested simultaneously.

One possible explanation to how the studies fit together is that relative education, as tested in the first three papers, is also a proxy for pre-adult factors such as family socio-economic status, cognitive ability and political socialization in the family environment. These factors might also be strongly related to social network centrality. Persons from families with high socio-economic status, with high cognitive ability, and a stimulating home environment are likely to get relatively high education in relation to those in their surroundings, get high social status manifested by their large social networks and participate more often in political activities. However, their social status may not necessarily be a consequence of their relative education; it can just as likely be a consequence of pre-adult factors. Nie, Junn and Stelhik-Barry argue that relative education is what drives social status but they do not show any results that rule out factors such as socio-economic status of the family in which one grew up, cognitive ability, or any other pre-adult factor as being the true causes to social status. Hence, it could be the case that relative education, social network position and political participation are all driven by pre-adult factors that are unmeasured in studies on relative education.

In the absence of a strict empirical test of all three models, the best explanation at hand is that relative education might be influenced by pre-adult factors as well. It is indeed reasonable to expect that relative education is more strongly influenced by pre-adult factors than absolute education. This is evident if we look at levels of education in the population over time. For example, 50 years ago, graduating from a gymnasium in Sweden or a high school in the United States might bring some social status while today this is more common. On the other hand, university education used to be something for a privileged few that has become far more accessible to larger groups in the population. When looking at education over time and between regions, it is not sensible to say that persons who grew up under favorable circumstances can be predicted to have a *specific* level of education (irrespective of which time and place one lives in). However, persons who grew up under favorable circumstances can reasonably be predicted to have a *relatively* high level of education (in relation to people in their surroundings).

Pre-adult factors, education and social network centrality are interlinked in a complicated nexus and it is hard to isolate the effects of each factor on political participation in empirical analyses. Given the results presented here, the papers in this dissertation answer some questions but also raise a number

of new ones. The important contributions lie in refinements of the relative education model and its ability to be generalized. In addition, the papers provide tests of the effects of college education and gymnasium tracking using panel studies. The major question raised that remains to be dealt with is primarily, how to simultaneously test all three models to get a better understanding of the interlinked effects of pre-adult factors, education and social network centrality on political participation.

Overall the studies in this dissertation undermine our belief in the absolute education model. The papers offer very limited support for the hypothesis that education is a direct cause for political participation. This means that the skills and knowledge gained through the process of education seem to be of little importance for political participation and do not function as the causal mechanisms connecting education and participation.

Does this mean that it is pointless for individuals to get high levels of education? No, it only means that education does not seem to cause political participation. However, it should be noted that education has an impact on other factors. For example, studies using robust estimation techniques have shown that education affects earnings (Angrist and Krueger 1991; Becker 1993; Öckert 2010) and health (Eide and Showalter 2011). Education has also been found to affect outcomes in the political domain such as civic and political knowledge (see e.g., Green et al. 2011; Finkel and Smith 2011). So while education does not seem to drive participation, it is of course not the case that education might not have effects on other important factors. Additionally, as mentioned previously, it is still possible that specific forms of education, educational content or teaching styles might affect political participation.

Implications for political behavior research

What are the implications for political behavior research? I began this introductory chapter by claiming that finding out which model can correctly explain the relationship between education and participation has important theoretical and societal implications. The studies presented here lend support to a revisionist view, moving beyond the idea of education as a direct cause for participation, and hopefully they provide a more nuanced picture of the role of education in political behavior research. The central implication is that education should not be seen as a simple, individual level cause for participation. In the wake of the Michigan school (Campbell et al. 1954, 1960) political behavior research has long been dominated primarily with analyses of individual level factors. The relative education model moves beyond such

individual level focus by emphasizing the interplay between individual and aggregate levels of education and the importance of social networks. In that sense it brings some restoration to the Columbia school (Lazersfeld et al. 1948; Berelson et al. 1954), which emphasized contextual level effects on political behavior.

However, the results are also a reminder of the perils of correlational analyses and the importance of not drawing conclusions from correlational evidence too quickly (cf. Achen 1977). Education almost always turns out to be a significant coefficient in regression models for political participation, but understanding what this coefficient really means is a hard task. Many researchers are too quick to say that significant effects of education signal direct causal effects of education. From standard regression models using one-shot cross-sectional data, it will continue to be almost impossible to understand exactly what the significant coefficient for education actually means. Additionally, remember that even the studies arguing that education has a direct causal effect on participation say very little about the causal mechanism and seldom show evidence regarding how the relationship can be explained.

Do the results matter for political behavior research that is not pre-occupied with the effects of education and focuses instead on the effects of other variables? I suggest that it does matter. Education is one of the most frequently used control variables in the field; it is one of the “usual suspects” in political behavior research. For that reason it is important to know what it is a control for. If we were sure that it, for example, measures skills, we might not be as concerned about whether or not skills are caused by education. Say that we study the impact of some other factor on political participation and we just want to control for skills in a regression model, so we control for education and leave the issues about causality aside. Then, it might not be so important if the relationship is causal or due to self-selection. The problem however, is that we are not sure that education is a proxy for skills. Verba, Schlozman and Brady (1995) put forward three factors as central explanations for political participation: resources, motivation and recruitment (see also Bäck, Teorell and Westholm (2011) for a discussion on the causes of political participation). Drawing on the literature on educational effects, education could be related with each of these factors; education might capture social network centrality (possibilities for recruitment), skills (resources), political efficacy (motivation), or other factors. Usually, researchers do not know what they control for when adding education as a control variable. If education is used as a control variable and captures effects of other variables correlated

with the main variables of interest in the analyses, the interpretation of the estimates will be problematic. Hence, even if education is used only as a control variable, it is important to understand what the relationship actually means and what education is a control for.

Democratic and policy implications

Why does it matter if people with lower education participate in politics to a lower extent than people with high education? It matters since unequal participation results in unequal political influence. Inequalities in political participation, such as systematic differences related to education, are often considered to be a democratic problem (cf. Lijphart 1997; van der Eijk and Franklin 2009; Schlozman, Verba and Brady 2012). Unequal participation hinders the possibilities of implementing policies in accordance with the will of all people. If people with low education do not express their political preferences it will be difficult for political representatives to implement policies that are in accordance with their preferences. Also if, at the same time, highly educated people make their voices heard to political representatives, public policies will likely be even more biased in favor of the highly educated peoples' preferences. This means that equal voice can be seen as important because it provides equal protection of interests.

In the United States there is strong evidence that unequal voice affects policy making; implemented policies have a strong relationship with the preferences of citizens with high socio-economic status (cf. Bartels 2008; Gilens 2005, 2012). Many commentators find this a troubling fact, but what can be done about it? How can the less educated be stimulated to participate more in political activities?

Some people would perhaps suggest increasing the educational levels among low educated people. This leads us to the policy implications. If education is a cause for political participation, raising the educational levels in a society could help address this problem. This means that the state can actually influence peoples' levels of political participation by reforming the educational system. For example, Lewis-Beck et al. (2008, 102) claim that "effective citizen participation depends on the operation of a nation's educational system". However, if education is a proxy for mainly pre-adult factors, inequalities in participation are not likely to be mitigated by education. Additionally if education is primarily a proxy for social status, more education will not get more people active in politics. The conclusion from this study is that reforming the educational system, in order to increase participation, is not necessarily a successful strategy. Expanding the

educational system might be good for other reasons, but the results presented here do not indicate that it is likely to have any strong effects on political participation. At least not when it comes to the traditional forms of participation analyzed in this study.

The road forward

How should this field move forward? First and foremost, further studies would benefit from trying to better estimate the causal effect of length of education, specific levels of education, as well as different types of education. Until the debate is settled and consensus can be reached regarding the impact of length and specific levels of education, further studies are valuable. Moreover, there is a need for studies focusing on different aspects of education, such as the educational content. While we have some solid evidence on the impact of education length, we know surprisingly little about other aspects of education.

Much focus has been on the impact of higher education (at colleges or universities), but the potential impact of lower levels of education is largely ignored. Recently, Esping-Andersen et al. (2012) have shown that high quality childcare in pre-schools at age three can affect cognitive ability later in life. However, there are no studies on whether high quality preschool education in turn also affects political participation later in life.

In the absence of large-scale randomized experiments, researchers should continue to take advantage of natural experimental situations such as, reforms of educational systems that have been implemented in a randomized or quasi-randomized way, or employing other techniques to estimate causality such as regression discontinuity designs or instrumental variable approaches.

Moreover, further studies should try to simultaneously test the relative education model, the pre-adult socialization model and the absolute education model. In order to do so, panel studies with comprehensive measures on the variables of interest—from pre-adult factors to adult social status—would be required.

The studies presented in this dissertation have shed some new light on how education is related to political participation, yet we do not have the full picture. Future studies like those outlined above would further improve our understanding of the relationship between education and political participation.

Notes

¹ Further studies should evaluate whether the conclusions from the studies in this dissertation hold when looking at “new” forms of participation, such as online-participation, consumer behavior, etc. The concentration on traditional forms of participation in this study is partly a consequence of a focus on such factors in existing surveys. Despite the importance of new alternative forms of participation, focusing on traditional forms of political participation is relevant given its importance for the functioning and legitimacy of democratic societies.

² This does not mean that informal forms of education are unimportant or do not affect political participation, it is merely a constraint on the scope of this dissertation to make the research task manageable. Future research however, would benefit from studying the impact of informal forms of education. For example, in the Swedish case an important educational institution has been “study circles” organized by the working class movement (cf. Jansson 2012; Milner 2002, 2010). Testing the causal effects of that type of education would be of importance for the field, but it falls outside the scope of this dissertation.

³ The concept “causal mechanisms” requires some further explanation. Theoretically, a causal mechanism can be seen as an explanation of what triggers the effect of the independent variable on the dependent variable (cf. Elster 1989; Hedström and Swedberg 1998). In this study, I discuss civic knowledge, skills and social networks as the possible causal mechanisms that might trigger the effect of education on political participation. Empirically, the factors serving as causal mechanisms can be seen as mediating variables (cf. Imai et al. 2012).

⁴ At this point, it should be noted that some studies show evidence that political knowledge is strongly correlated with political participation. For example, Milner (2002) uses data from the International Adult Literacy Survey (IALS) that shows correlations between civic literacy and voter turnout. This data draws on studies from a number of countries in which tests have been conducted on the ability of adult citizens to understand texts such as news articles and official documents. However, this study focuses on correlations at the country level and it is not obvious how to understand the causality, if it exists, in this relationship between factual knowledge and participation (cf. Rothstein 2003). Hence, this study does not show evidence that factual knowledge is a causal effect of education and it does not confirm

the hypothesized causal pathway from education via knowledge to participation.

⁵ At this point it should be clarified that the studies in this dissertation will not provide extensive tests of the different causal mechanisms. In the absence of a solid research design that would accomplish this testing, the studies in the dissertation mainly test the observable predictions of the models. However, the third paper does provide a test of whether social network position mediates the relationship, but the studies do not provide any tests of whether alternative factors work as causal mechanisms linking participation and education.

⁶ Here it should be emphasized that it is not obvious that the value of education should be decreasing over time; the value of individual education depends on both the supply and demand for education. Put differently, Nie, Junn and Stehlik-Barry focus only on the supply side while ignoring the demand for education. However, recent studies show that as a consequence, different levels of supply and demand of education affect the impact of education on participation; i.e., the effect of education might vary in different institutional and socio-economic contexts (cf. Busemeyer and Goerres 2014).

References

- Achen, C.H. (1977). Measuring representation: Perils of the correlation coefficient. *American Journal of Political Science* 21: 805-815.
- Alford, J.R., Funk, C.L. & Hibbing, J.R. (2005). Are political orientations genetically transmitted? *American Political Science Review* 99: 153-167.
- Andersson, K. (2012). *Deliberativ undervisning: En empirisk studie*. Gothenburg: Department of political science, University of Gothenburg.
- Angrist, J.D. & Krueger, A.B. (1991). Does compulsory schooling attendance affect schooling and earnings? *Quarterly Journal of Economics* 106: 976-1014.
- Bartels, L. (2008). *Unequal democracy: The political economy of the new gilded age*. Princeton: Princeton University Press.
- Becker, G. (1993). *Human capital: A theoretical and empirical analysis with special reference to education*. Chicago: University of Chicago Press.
- Belley, P. & Lochner, L. (2007). The changing role of family income and ability in determining educational achievement. *Journal of Human Capital* 1: 37-89.
- Berelson, B.R., Lazarsfeld, P. & McPhee, W.N. (1954). *Voting: A study of opinion formation in a presidential election*. Chicago: University of Chicago Press.
- Berinsky, A.J. & Lenz, G.S. (2011). Education and political participation: Exploring the causal link. *Political Behavior* 33: 357-373.
- Brody, R.A. (1978). The puzzle of political participation in America. In King, A. (Ed.) *The new American political system*. Washington DC: American Enterprise Institute.
- Burden, B. (2009). The dynamic effects of education on voter turnout. *Electoral Studies* 28: 540-549.
- Busemeyer, M.R. & Goerres, A. (2014). Varieties of capitalism, education and inequalities in political participation. In Kumlin, S. & Stadelmann-Steffen, I. (eds.) *How welfare states shape the democratic public: Policy feedback, participation, voting and attitudes*. Cheltenham: Edward Elgar.
- Bäck, H., Teorell, J. & Westholm, A. (2011). Explaining modes of

- participation: A dynamic test of alternative rational choice models. *Scandinavian Political Studies* 34: 74–97.
- Campbell, A., Converse, P.E., Miller, W.E. & Stokes, D.E. (1960). *The American voter*. New York: Wiley.
- Campbell, A., Gurin, G. & Miller, W.E. (1954). *The voter decides*. Evanston, IL: Row, Peterson.
- Campbell, D.E. (2006). What is education's impact on civic and social engagement? In Desjardins, R. & Schuller, T. (eds.) *Measuring the effects of education on health and civic engagement*. Paris: OECD Centre for Educational Research and Innovation.
- Campbell, D.E. (2008). Voice in the classroom: How an open classroom climate fosters political engagement among adolescents. *Political Behavior* 30: 437–454.
- Campbell, D.E. (2009). Civic engagement and education: An empirical test of the sorting model. *American Journal of Political Science* 53: 771–786.
- Campbell, D.E. (2013). Social networks and political participation. *Annual Review of Political Science* 16: 33–48.
- Converse, P.E. (1972). Change in the American electorate. In Campbell, A. & Converse, P.E. (eds.) *The Human Meaning of Social Change*. New York: Russell Sage.
- Deary, I.J., Batty, G.D. & Gale, C.R. (2008). Childhood intelligence predicts voter turnout. *Intelligence* 36: 548–555.
- Dee, T.S. (2004). Are there civic returns to education? *Journal of Public Economics* 88: 1697–1720.
- Dehejia, R.H. & Wahba, S. (2002). Propensity score matching methods for nonexperimental causal studies. *Review of Economics and Statistics* 84: 151–161.
- Delli Carpini, M.X. (1997). Book review: Education and democratic citizenship in America. *American Political Science Review* 91: 971–972.
- Denver, D. & Hands, G. (1990). Does studying politics make a difference? The political knowledge, attitudes and perceptions of school students. *British Journal of Political Science* 20: 263–288.
- Diamond, A. & Sekhon, J.S. (2012). Genetic matching for estimating causal

effects: A general multivariate matching method for achieving balance in observational studies. Paper available at:

<http://sekhon.berkeley.edu/papers/GenMatch.pdf>.

Eide, E.R. & Showalter, M.H. (2011). Estimating the relation between health and education: What do we know and what do we need to know? *Economics of Education Review* 30: 778–791.

Eijk, C. van der, & Franklin, M. (2009). *Elections and voters*. New York: Palgrave Macmillan.

Ekman, T. (2007). *Demokratisk kompetens: Om gymnasiet som demokratiskola*. Gothenburg: Department of political science, University of Gothenburg.

Elster, J. (1989). *Nuts and bolts for the social sciences*. Cambridge: Cambridge University Press.

Esaiasson, P. & Holmberg, S. (1996). *Representation from above: Members of parliament and representative democracy in Sweden*. Aldershot: Dartmouth.

Esaiasson, P. & Persson, M. (Forthcoming). Does studying political science affect civic attitudes? A panel comparison of students of politics, law, and mass communication. Unpublished manuscript.

Esping-Anderson, G., Garfinkel, I., Han, W-J., Magnuson, K., Wagner, S. & Wadfogel, J. (2012). Child care and school performance in Denmark and the United States. *Comparative Child and Family Policy* 34: 576–589.

Finkel, S.E., Horowitz, J. & Rojo-Mendoza, R.T. (2012). Civic education and democratic backsliding in the wake of Kenya's post-2007 election violence. *Journal of Politics* 74: 52–65.

Finkel, S.E. & Smith, A.E. (2011). Civic education, political discussion, and the social transmission of democratic knowledge and values in a new democracy: Kenya 2002. *American Journal of Political Science* 55: 417–435.

Franklin, M.N. (2004) *Voter turnout and the dynamics of electoral competition in established democracies since 1945*. Cambridge: Cambridge University Press.

Gelman, A. & Hill, J. (2007). *Data analysis using regression and multilevel/hierarchical models*. Cambridge University Press.

Gerber, A.S. & Green, D.P. (2012). *Field experiments: Design, analysis, and*

interpretation. New York: W.W. Norton.

Gilens, Martin. (2005). Inequality and democratic responsiveness. *Public Opinion Quarterly* 69: 778–796.

Gilens, Martin. (2012). *Affluence and influence*. Princeton: Princeton University Press.

Green, D.P., Aronow, P.M., Bergan, D.E., Greene, P., Paris, C. & Weinberger, B.I. (2011). Does knowledge of constitutional principles increase support for civil liberties? Results from a randomized field experiment. *Journal of Politics* 73: 463–476.

Hedström, P. & Swedberg, R. (eds.) (1998). *Social mechanisms: An analytical approach to social theory*. Cambridge: Cambridge University Press.

Helliwell J. & Putnam R.D. (2007). Education and social capital. *Eastern Economic Journal* 33: 1–19.

Henderson, J. & Chatfield, S. (2011). Who matches? Propensity scores and bias in the causal effects of education on participation. *Journal of Politics* 73: 646–58.

Highton, B. (2009). Revisiting the relationship between educational attainment and political sophistication. *Journal of Politics* 71: 1564–1576.

Hillygus, D.S. (2005). The missing link: Exploring the relationship between higher education and political behavior. *Political Behavior* 27: 25–47.

Hirsch, F. (1978). *Social limits to growth*. London: Routledge & Kegan Paul.

Hollis, M. (1982). Education as a positional good. *Journal of Philosophy of Education* 16: 235–244.

Huckfeldt, R. (1979). Political participation and the neighborhood social context. *American Journal of Political Science* 23: 579–592.

Ichilov, O. (2003). Education and democratic citizenship in a changing world., In Sears, D.O., Huddy, L. & Roberts, J. (eds). *The Oxford handbook of political psychology*. Oxford: Oxford University Press.

Imai, K., Keele, L., Tingley, D. & Yamamoto, T. (2011). Unpacking the black box of causality: Learning about causal mechanisms from experimental and observational studies. *American Political Science Review* 105: 765–89.

Jackson, R. A. (1995). Clarifying the relationship between education and

turnout. *American Politics Research* 23: 279–299.

Jansson, Jenny. (2012). *Manufacturing consensus: The making of the Swedish reformist working class*. Uppsala: Department of Government.

Jennings, K.M. & Niemi, R.G. (1974). *The political character of adolescence: The influence of families and schools*. Princeton: Princeton University Press.

Kam, C.D. & Palmer, C.L. (2008). Reconsidering the effects of education on political participation. *Journal of Politics* 70: 612–31.

Kam, C.D. & Palmer, C.L. (2011). Rejoinder: Reinvestigating the causal relationship between higher education and political participation. *Journal of Politics* 73: 659–663.

Kotler-Berkowitz, L. (2005). Friends and politics: Linking diverse friendship networks to political participation. In Zuckerman, A.S. (ed.) *The social logic of politics: Personal networks as contexts for political behavior*. Philadelphia: Temple University Press.

Langton, K.P. & Jennings, K.M. (1968). Political socialization and the high school civics curriculum in the United States. *American Political Science Review* 62: 852–867.

Lauglo, J. & Øia, T. (2006). *Education and civic engagement among Norwegian youths*. Report 14/06. Oslo: NOVA Norwegian Social Research.

Lazersfeld, P.F., Berelson, B. & Gaudet, H. (1948). *The people's choice: How the voter makes up his mind in a presidential campaign*. New York: Columbia University Press.

Lewis-Beck, M.S., Jacoby, W.G., Norpoth, H. & Weisberg, H.F. (2008). *The American voter revisited*. Ann Arbor: University of Michigan Press.

Lijphart, A. (1997). Unequal participation: Democracy's unresolved dilemma. *American Political Science Review* 91: 1–14.

Losito, B. & D'Apice, A. (2004). Democracy, citizenship, participation: The results of the second IEA civic education study in Italy. *International Journal of Educational Research* 39: 609–620.

Luskin, R.C. (1990). Explaining political sophistication. *Political Behavior* 12: 331–361.

Mayer, A.K. (2011). Does education increase political participation? *Journal of Politics* 73: 633–645.

- McClurg, S.D. (2003). Social networks and political participation: The role of social interaction in explaining political participation. *Political Research Quarterly* 56: 448–464.
- Meghir, C. & Palme, M. (2005). Educational reform, ability and family background. *American Economic Review* 95: 414–424.
- Milligan, K., Moretti, E. & Oreopoulos, P. (2004). Does education improve citizenship? Evidence from the United States and the United Kingdom. *Journal of Public Economics* 88: 1667–1695.
- Milner, H. (2002). *Civic literacy: How informed citizens make democracy work*. Hanover: Tufts University/University Press of New England.
- Milner, H. (2010). *The Internet generation: Engaged citizens or political dropouts?* Hanover: Tufts University/University Press of New England.
- Mondak, J.J. & Halperin, K.D. (2008). A Framework for the Study of Personality and Political Behaviour. *British Journal of Political Science* 38: 335–62.
- Mutz, D.C. (2002). The consequences of cross cutting networks for political participation. *American Journal of Political Science* 46: 838–855.
- Nie, N.H. & Hillygus, S.D. (2001). Education and democratic citizenship. In Ravitch, D. & Viteritti, J. P. (eds.) *Making good citizens: Education and civil society*. New Haven: Yale University Press.
- Nie, N.H., Junn, J. & Stehlik-Barry, K. (1996). *Education and democratic citizenship in America*. Chicago: University of Chicago Press.
- Niemi, R.G. & Hanmer, M. (2010). Voter turnout among college students: New data and a rethinking of traditional theories. *Social Science Quarterly* 91: 301–323.
- Niemi, R.G. & Junn, J. (1998). *Civic education. What makes students learn?* New Haven: Yale University Press.
- Paterson, L. (2009). Civic values and the subject matter of educational courses. *Oxford Review of Education* 35: 81–98.
- Pelkonen, P. (2012). Length of compulsory education and voter turnout: Evidence from a staged reform. *Public Choice* 150: 51–75.
- Persson, M. (2011). An empirical test of the relative education model in Sweden. *Political Behavior* 33: 455–478.

- Persson, M. (2012). Does type of education affect political participation? Results from a panel survey of Swedish adolescents. *Scandinavian Political Studies* 35: 198–221.
- Persson, M. (2013). Is the effect of education on voter turnout absolute or relative? A multi-level analysis of 37 countries. *Journal of Elections, Public Opinion and Parties* 23: 111–133.
- Persson, M. (2014). Testing the relationship between education and political participation using the 1970 British cohort study. *Political Behavior*.
- Persson, M. (2015). Social network position mediates the effect of education on active political party membership. *Party Politics*.
- Persson, M. (Forthcoming). Classroom climate and political learning: Findings from a Swedish panel study and comparative data. Unpublished manuscript.
- Persson, M. & Oscarsson, H. (2010). Did the egalitarian reforms of the Swedish educational system equalise levels of democratic citizenship? *Scandinavian Political Studies* 33: 135–163.
- Quintelier, E. (2008). The effect of schools on political participation: A multilevel logistic analysis. *Research Papers in Education* 25: 137–54.
- Rosenstone, S.J. & Hansen, J.M. (1993). *Mobilization, participation and democracy in America*. New York: Macmillan.
- Rothstein, B. (1996). *The social democratic state: The Swedish model and the bureaucratic problems of social reforms*. Pittsburg: University of Pittsburgh Press.
- Rothstein, B. (2003). Book review. Civic literacy: How informed citizens make democracy work, by Henry Milner. *Perspectives on Politics* 1: 627–627.
- Rubin, D.B. (1973). Matching to remove bias in observational studies. *Biometrics* 29: 159–183.
- Rubin, D.B. (1974). Estimating causal effects of treatments in randomized and nonrandomized studies. *Journal of Educational Psychology* 66: 688–701.
- Schlozman, K. L., Verba, S. & Brady, H.E. (2012). *The unheavenly chorus: Unequal political voice and the broken promise of American democracy*. Princeton: Princeton University Press.
- Sears, D.O. & Funk, C.L. (1999). Evidence of the long-term persistence of adults' political predispositions. *Journal of Politics* 61: 1–28.

- Siegel, D.A. (2009). Social networks and collective action. *American Journal of Political Science* 53: 122–138.
- Sondheimer, R.M. & Green, D.P. (2010). Using experiments to estimate the effects of education on voter turnout. *American Journal of Political Science* 54: 174–189.
- Tenn, S. (2005). An alternative measure of relative education to explain voter turnout. *Journal of Politics* 67: 271–282.
- Tenn, S. (2007). The effect of education on voter turnout. *Political Analysis* 15: 446–464.
- Tingsten, H. (1937). *Political behavior: Studies in election statistics*. London: P.S. King & Son, Ltd.
- Van de Werfhorst, H. G. 2007. Vocational education and active citizenship behavior in cross-national perspective, AIAS Working Paper 2007-62. Amsterdam: University of Amsterdam.
- Verba, S., Schlozman, K.L. & Brady, H. (1995). *Voice and equality: Civic voluntarism in American politics*. Cambridge: Harvard University Press.
- Westholm, A., Lindquist, A. & Niemi, R.G. (1990). Education and the making of the informed citizen: Political literacy and the outside world., in Ichilov, O. (ed.) *Political socialization, citizenship and democracy*. New York/London: Teachers College Press.
- Wolfinger, R.E. & Rosenstone, S.J. (1980). *Who votes?* New Haven: Yale University Press.
- Öckert, B. (2010). What's the value of an acceptance letter? Using admissions data to estimate the return to college. *Economics of Education Review* 29: 509–516.
- Öhrvall, R. (2009). *Valdeltagande bland förstagångsväljare*. Stockholm: Sveriges Kommuner och Landsting.

