ASSESSING THE IMPACT OF THE COLLEGE EXPERIENCE ON CIVIC ENGAGEMENT: A PROPENSITY SCORE MATCHING APPROACH

by

Jessica Mason

B.A., Boston University, 2005

M.A., New York University, 2010

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This dissertation was presented

by

Jessica Mason

It was defended on

April 1, 2016

and approved by

Linda DeAngelo, PhD, Assistant Professor, Administrative and Policy Studies

Steven Finkel, PhD, Daniel H. Wallace Professor, Political Science

Sean Kelly, PhD, Associate Professor, Administrative and Policy Studies

Dissertation Advisor: M. Najeeb Shafiq, PhD, Associate Professor, Administrative and Policy Studies

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Jessica Mason, Ph.D.

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Today's "millennial" undergraduate students are less politically involved than students in past generations, and voter turnout among the 18-25 age group has been on the decline since the 1970s. At the same time, however, student activism remains important on American university campuses, student opinions reflect a continued interest in the democratic process, and college freshman in 2015 were more politically involved than any of their peers in the 50 years prior. Colleges and universities are well positioned for the promotion of civic engagement, especially given the public history of the American university, many of which were involved in nation building. As such, it is important to consider the potential civic impact of higher education institutions.

Using data from the NCES 2002 Education Longitudinal Study (ELS:2002), IPEDS 2006, and the 1965 Youth-Parent Socialization Panel Study, I use propensity score matching to understand the effects of various aspects of the college experience on civic engagement outcomes. I use an adaptation of Astin's (1993) input-environment-outcome model of college impact, informed by the literature on political socialization and pre-college civic education. This study's first key finding is that college involvement, more than the type of institution attended, has an impact on young adult civic engagement outcomes. The second key finding in this study

is that the effects of the college experience on civic engagement outcomes may not persist into later adulthood.

This study addresses a key methodological challenge in the literature on civic engagement by using propensity score matching to mitigate the effects of selection bias. This study also contributes to the extant literature on civic education by applying an interdisciplinary framework, and by supporting research that the "within college" effect is stronger than the "between college" effect on student outcomes. Based on this study's findings, several recommendations for research and practice are offered: awareness of generational differences in political socialization; tracking specifics of engagement in college activities; promoting engagement for those least likely to get involved; and development of richer data with outcomes relevant to today's millennial college students.

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PREFACE

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1.0 INTRODUCTION

Declining civic engagement has often been cited as an impediment to effective participatory democracy (Niemi & Junn, 1998; Putnam, 2000). Today's "millennial" undergraduate students are less politically involved and interested than those of past generations (Levine & Dean, 2012), and voter turnout among the 18-25 age group has been on the decline since the 1970s and especially in the last decade (Dávila & Mora, 2013). Youth voter turnout in the 2012 United States presidential election saw a 6 percentage point decline from the 2008 election, with 45% of citizens ages 18-29 voting in the election. In comparison, adults over the age of 30 only saw a 0.7 percentage point drop in voter turnout between the 2008 and 2012 elections. The 18-29 age group makes up a 21% share of the U.S. population (Dávila & Mora, 2013), and research shows that lower socioeconomic status young people are less likely to vote or to be well-informed about politics (CIRCLE, 2013). Further, voter turnout rates overall in the United States also fall considerably below the average voter turnout rate for countries in the Organisation for Economic Co-operation and Development (OECD); the OECD average turnout rate in 2011 was 70%, compared to 48% in the United States (OECD, 2011). It is thus critical to understand motivations behind youth voting behavior and their implications in order to promote greater and more equitable participation in the political process in future generations and on the world stage.

Along with declining voter turnout, declining civic or community engagement has received considerable attention (Putnam, 1995). In particular, some argue that today's

"millennial" undergraduate students are less politically active than their counterparts in the past and that undergraduate students are less involved in on-campus governance. These activities have been replaced by more individual efforts that involve a lower level of risk, with internet-based activities becoming more popular (Levine & Dean, 2012; Perna & Thomas, 2005).

At the same time, however, student activism, albeit often in different forms than in the past, continues to be an important presence on American university campuses, and student opinions reflect a continued interest in the democratic process and free speech. The Occupy Colleges protests, which developed out of support for the Occupy Wall Street movement, provide an illustrative example of current forms of student activism; these protests took place on a largely digital platform through internet and social media. Further, incoming college freshman in 2015 were more interested in protest and activism than any of their peers had been in the fifty years prior (Eagan et al., 2015). Young people are also becoming more involved in local community service (Levine & Dean, 2012), and their ideas about what constitutes a "good citizen" have changed, reflecting a more engaged citizenship with concern for social justice (Dalton, 2008). Essentially, students become politically active in different ways and for different reasons than previous generations, making it even more important to understand the ways in which current young people are socialized to become politically active and engaged in their communities.

1.1 CIVIC EDUCATION AND SOCIETY

1.1.1 K-12 Education

Civic education in American primary and secondary schooling is rooted in efforts to promote social cohesion among diverse political and state groups after the Revolutionary War, where public education was intended to promote the democratic values of the new government (Butts, 1989). The seminal works of John Dewey (1902) and Horace Mann (1848), for instance, emphasize the role of schools in both developing democratic values and educating students such that they possess adequate knowledge with which to participate effectively in democracy. While the mechanisms through which education affects political outcomes can be debated, education continues to be the strongest predictor of political knowledge and behavior (Dee, 2004; Niemi & Junn, 1998; Sondheimer & Green, 2010; Wolfinger & Rosenstone, 1980).

Students in primary and especially in secondary education in the United States are exposed to a number of different experiences that can affect the acquisition of political knowledge and future political and community engagement. In addition to traditional civics curricula, students can develop skills and values through other subject matter, through participation in school-sponsored extracurricular activities, and outside of school (Niemi & Junn, 1998). Nearly 90% of high school students in the United States take civics courses, and most states have compulsory civic education. However, today's highly divisive political climate poses substantial challenges to promoting civic engagement. Education about civic issues can become controversial and many teachers and administrators feel discouraged from including any such content in their instruction. Opportunity to participate in the political sphere is unequally distributed, and students in public schools are more diverse than ever, which makes the "one-

size-fits-all" model of civic education less relevant. In addition to these challenges in administering civic education, more than three quarters of American students continue to score below proficient on the National Assessment of Educational Progress (NAEP) civics assessment, a national assessment that measures students' knowledge of the American government and political structure (CIRCLE, 2013).

1.1.2 Higher education

Like the history of civic education in K-12 schools, the "civic mission" and public history of American higher education has also been well documented. One of higher education's purposes throughout history has been the development of active, informed citizens who are prepared to participate in democratic society. Figures like Thomas Jefferson and Benjamin Franklin were very concerned with ensuring that higher education prepared democratic citizens, and students in colonial colleges were engaged in debates about independence (Jacoby, 2009). Prior to the Civil War, higher education institutions promoted a continuation of civic learning that began during K-12 education. Students who attended these early institutions were taught subjects like moral philosophy, and student activities and societies promoted debate about government and politics (Lagemann & Lewis, 2012). Also during this time, the 1862 Morrill Act established land grant colleges, further connecting postsecondary institutions to the community (Jacoby, 2009).

The growing importance of science after the Civil War, coupled with professionalization and specialization of academic disciplines led to the declining importance of widespread civic education in colleges. After World War II, however, universities were again more engaged in the public sphere, with the expectation that they would play a role in economic development and public diplomacy, and the 1960s and 1970s saw a rise in student civic engagement on campuses.

Further, initiatives like the Peace Corps (beginning in 1961) increased college student participation in community service (Jacoby, 2009)

Concurrent with the decline in youth civic engagement, higher education institutions today are viewed primarily in an instrumental perspective, “as gateways to economic security and middle-class status” (Zemsky et al., 2005). Despite the changes in higher education’s relationship with civic engagement, policies like the National and Community Service Act (1990) and the National and Community Service Trust Act (1993) provided funding and created programs that have led to the rise in popularity of service learning on university campuses. More recent initiatives to promote civic engagement in higher education come from organizations and higher education associations. For instance, Campus Compact, which promotes community service at colleges and universities, provides resources and partnerships to support community service (Campus Compact, 2016; Jacoby, 2009). The Association of American Colleges and Universities (AAC&U) also promotes the public role of higher education; their 2013-2017 strategic plan includes goals related to social responsibility and civic learning (AAC&U, 2013).

Research universities are "strategically situated" for the promotion of civic engagement, especially given the public history of the American research university, many of which were involved in nation building. Research universities are also well equipped for a civic education goal given their resources and wealth of experienced faculty and staff: "they are more than educational institutions; they also are major employers, providers and consumers of goods and services, and powerful social and economic units whose decisions affect communities" (Checkoway, 2005, p. 128). Thus, it is critical to consider the potential civic impact of higher education institutions.

1.2 SCHOLARLY DISCOURSE ON POLITICAL SOCIALIZATION AND CIVIC ENGAGEMENT

1.2.1 Theoretical perspectives

Scholars from different disciplines approach the analysis of civic engagement through different lenses, like political socialization, civic education, or service learning. Theorists of political socialization come primarily from political science and sociology, and study the mechanisms by which individuals are socialized to become civically engaged. Stemming from the early work of Jennings and colleagues (Jennings et al., 2009; Jennings & Markus, 1984; Jennings & Niemi, 1968), political socialization theorists often privilege the family as a primary agent of political socialization, arguing that political values are developed early in life and remain constant. Other factors have also been shown to impact civic engagement, including media (e.g. Jerit et al., 2006; Shah, 2005), volunteerism (Verba et al., 1995), political context (e.g. Cho et al., 2006; Pacheco. 2008), and education.

1.2.2 Existing Literature

Education has consistently been shown to be a strong predictor of voting behavior and other political activity (Dee, 2004; Niemi & Junn, 1998; Sondheimer & Green, 2010; Wolfinger & Rosenstone, 1980), and it can shape political outcomes indirectly through development of knowledge, skills, and social capital (Emler & Frazer, 1999). In research on civic engagement in higher education, there is an abundance of evidence on the effects of service learning on civic engagement (Giles & Eyler, 1994; Seider, Rabinowicz, & Gillmor, 2011; Vogelgesang & Astin,

2000). However, studies of service learning are often lacking a coherent methodological and theoretical approach. Other types of campus involvement also affect civic outcomes, like leadership activities (Cress, Astin, Zimmerman-Oster, & Burkhardt, 2001), ethnic organizations (Bowman et al., 2014) or programs targeted at civic outcomes (Smith, 2012). Campus climate also plays a role in promoting civic engagement (Gayles, Rockenbach, & Davis, 2012).

Despite the established importance of education as an agent of political socialization and its potential ability to mediate early effects of family socialization, research in the field of higher education related to political and community engagement outcomes lacks consistent theoretical and methodological approaches. There is a great deal of variation in the conceptualization of civic engagement, the focus of study, and empirical approaches, and the dearth of interdisciplinary approaches to civic engagement leave the educational research on student civic engagement fragmented and uneven in quality. Research on the relationship between civic engagement and education is by nature also subject to the challenge of accounting for self-selection bias; students who are politically interested or have been exposed to family political socialization are more likely to become involved in educational activities that promote future civic engagement. As such, studies tend to privilege students with higher initial levels of political socialization. Further, the bulk of studies are limited to considering only youth or young adult outcomes, leaving persistence of education effects throughout the life course understudied.

1.3 RESEARCH QUESTIONS

In light of these important gaps in the literature on civic education and political socialization, this study is designed to address issues related to theoretical frameworks, self-selection bias, and the

potential persistence of education effects throughout the life course. As such, I seek to answer the following three research questions:

- RQ1: What is the impact of extracurricular participation in college on young adult civic engagement?
- RQ2: What is the impact of attending a private postsecondary institution on young adult civic engagement?
- RQ3: Does the effect of the college experience on civic engagement persist past young adulthood?
    - RQ3a: Does having one's beliefs challenged in college impact civic engagement later in life?
    - RQ3b: Does social science course taking in college impact civic engagement later in life?
    - RQ3c: Does receiving a bachelor's degree impact civic engagement later in life?

1.4 DEFINITION OF TERMS

Research on political socialization and civic engagement uses a wide variety of similar terms to describe political and community outcomes, and the uses are not always consistent. Political engagement or participation refers explicitly to participation in the political structure through activities like voting. Political engagement is, in many ways, embedded within the second term, community engagement or participation. Community, or civic, engagement or participation refers to individuals who are active in the community in which they live, which in this study, refers to a wider range of activities, including community service, charitable donations, voting,

and general political interest. A useful definition of civic engagement is: “acting upon a heightened sense of responsibility to one’s communities” (Coalition for Civic Engagement and Leadership, as cited in Jacoby, 2009, p. 9). Informed by this more broad definition, and because the questions being explored in this study often encompass both political and community engagement, I use the term “civic engagement” to signify both types of engagement.

1.5 SIGNIFICANCE

This study provides significant methodological and theoretical contributions to the extant literature on civic education. First, I apply a well-established higher education theoretical framework of college impact (Astin, 1993), informed by research in sociology and political science on political socialization. In the literature on civic engagement in higher education, this interdisciplinary perspective is often missing. I also address the persistent problem of self-selection bias through propensity score matching and investigate the persistence of education effects on political outcomes beyond young adulthood. Further, this study lends support to the finding in other areas of higher education research that the “within college” effect is stronger than the “between college” effect on student outcomes (Pascarella & Terenzini, 2005), by demonstrating that this relationship also holds true for civic engagement outcomes.

1.6 OUTLINE OF STUDY

This dissertation is organized into six chapters. Following this introduction (Chapter 1), Chapter 2 reviews the relevant political socialization literature from sociology and political science in order to provide a sound theoretical framework for the study of civic engagement in higher education. Following that, higher education research is reviewed, highlighting the gaps discussed briefly in this introduction and providing the backdrop for the study, then the conceptual model is presented. Chapter 3 describes the study's research design; in particular, I discuss how propensity score matching is an appropriate methodological choice to mitigate bias associated with self-selection. Because I use two different datasets, I provide detailed descriptions of variables and data in Chapters 5 and 6, which present the analyses using data from the 2002 Education Longitudinal Study (RQ1 and RQ2), and the 1965 Youth-Parent Socialization Panel Study (RQ3), respectively. Finally, Chapter 6 summarizes the key findings and limitations, highlights the study's contributions to the research, and offers recommendations for research and practice.

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

In the following review of the literature, I examine the extant research on political socialization and civic education as it relates to these research questions. I first present a theoretical framework based on political socialization research primarily in sociology and political science, considering the mechanisms by which different "agents" of political socialization affect civic engagement outcomes. I then turn to a review of the literature on civic engagement in higher education. I show that higher education researchers conceive of civic engagement outcomes as related to several different key aspects of the college experience; however, they would benefit from further engagement with the discourse on political socialization theory. I conclude with a discussion of methodological approaches and issues in the literature on political and civic engagement, especially in research in the field of education.

2.2 LITERATURE ON POLITICAL SOCIALIZATION

In this section, I review the well-established body of research, primarily in political science and sociology, on political socialization. The literature reveals several key "agents" of political

socialization: family, social class, volunteerism, media consumption, and political context. These agents of political socialization will be used to inform this study's conceptual model.

2.2.1 Agents of socialization

2.2.1.1 Traditional family socialization models

Some of the earliest studies in political socialization pointed to the effects of the family on political socialization. Jennings and Niemi's (1968) influential work in this area used social learning theory, which posits that child development happens in a social environment through modeling and observation, thus children come to resemble their parents through interaction in the home, and in varying ways. That is, children come to resemble their parents more in some ways than others. Their analysis, using data from the Youth-Parent Socialization Panel Study, supported social learning theory (Bandura, 1971) in that political values were transmitted from parent to child, and that success of transmission varied according to the type of political trait. They argued that the most successful transmissions were of traits that were the most "concrete, affect-laden, and central," while those traits that were "abstract, ephemeral, and historically conditioned" were less likely to be passed on (Jennings et al., 2009, p. 782). Further, the earlier on in life that traits are acquired by children, the greater the probability will be that these traits will persist throughout the life course. Known as the "primacy principle" (Searing, Wright, & Rabinowitz, 1976), this perspective privileges the childhood socialization over political learning later in life as the time when political attitudes are developed. The political values or behaviors acquired early in life are then influential in shaping any future changes in political values or behaviors, which, they argue, are relatively small. Further, the earlier political learning occurs in life, the more likely it is that those values will persist throughout the life course.

Research that deals with political socialization in the family generally supports the earlier work of Jennings and colleagues, where children develop political attitudes both through direct discussion and through modeling (Pacheco, 2008; Westholm, 1999). The findings of Beck and Jennings (1982) provide an example of political socialization through modeling, showing that parental political participation and parental civic orientations, among other factors, are predictive of young adult civic engagement. Additionally, Verba et al. (1995) argue that parents influence children's political behavior through political involvement, which models political behavior for children. Using data from the 1990 American Citizen Participation Study, they find that individuals who reported higher levels of political discussion in the home during childhood and adolescence or who reported having seen parents being politically active were more politically engaged as adults than those who did not. Westholm (1999), using political socialization data from Sweden finds that perception, which implies that there is agreement between parental political opinions and child perception of those opinions, is a stronger predictor of political socialization than parental persuasion. That is, Westholm's findings lend support to the idea that children develop political attitudes through modeling.

Scholars also view the family's role in political socialization in terms of social capital development, where the transmission of social capital from parent to child affects a number of secondary variables, which in turn influence future political outcomes. In this context, authors examine variables like parent political associations, the amount of political discussion in the home, or parental socioeconomic status. Beck and Jennings (1982), for instance, find, using path analysis, that parental SES is the most influential factor in predicting young adult civic engagement, given the impact it has on school activity, parental political behavior and orientation, and youth SES. Family political socialization is highly dependent on parental

socioeconomic status, as higher SES parents will have access to a greater number of political resources (Van Deth et al., 2011; Verba et al., 1996).

2.2.1.2 Social Class

Social class indirectly affects civic engagement through the ways in which class can influence access to certain institutions. For instance, lower SES children tend to attend lower quality schools, leading to lower civic engagement outcomes, and lower SES individuals are less likely to participate in voluntary organizations, which also limits political socialization through volunteerism. However, social class can also have a more direct effect on political outcomes. The typical argument for class-based voting behavior is that working class or lower socioeconomic status groups tend to support left-wing parties due to the fact that these parties generally support social change, while more wealthy class groups vote for right-wing parties in order to protect their financial interests.

Scholars who study class-based political behavior have found that despite a changing debate about the importance of social class, class cleavages remain present in voting data, with some variation cross-nationally (Brooks, Nieuwbeerta, & Manza, 2006; Weakliem & Heath, 1994). For instance, Weakliem and Heath (1994) use British election data to investigate the reasons that voting often tends to follow class lines. They compare the effects of social class as a predictor for voting behavior to the effects of income as a predictor, arguing that not all political decisions are influenced solely by income. They find that while class and income both have effects on voting behavior, social class is a stronger predictor of a respondent's voting decision. Complementing the traditional argument that class matters because of its influence on the way individuals view policy, they also find that class voting is influenced by group identity, whereby

respondents are attracted to policy not only for its content but also because it is directed at their particular identity group.

2.2.1.3 Volunteerism

Another agent of political socialization is participation in voluntary organizations. Scholars have argued that volunteerism is a strong predictor of adult political participation as a result of the social capital that individuals gain through participation and through social learning within the organizations (Burns et al., 2001; Putnam, 2000; Hanks, 1981). In some of the most widely cited studies of political socialization and voluntary participation, Sidney Verba and colleagues argue that participation in voluntary organizations is positively associated with a wide variety of political socialization indicators (e.g. Verba et al., 1996; Brady et al., 1995; Burns et al., 2001) Particularly useful in explaining the role of voluntary associations in political socialization, Brady, et al. (1995) present a "resource model" of political participation, arguing that there are distinct resources that support political participation: time, money, and civic skills, which involve "communications and organizational capacities" that allow individuals to participate effectively in political activities. The authors acknowledge that the development of these capacities begins with learning in the family and the school, and they argue that learning continues in the "nonpolitical institutions of adult life" (p. 273). Voluntary organization activities are included, as the authors argue that willingness to be engaged in activities like leadership or activism outside of politics would make individuals more likely to participate in similar political activities.

Further, voluntary organizations that are not expressly political can still be quite connected with the political sphere. Participants can develop skills and networks that positively influence future political participation, and these organizations (particularly religious

organizations) can “act as the locus of attempts at political recruitment” (p. 40). The structure of the institution also affects the development of civic skills. For instance, a hierarchical church organization would provide fewer opportunities for individuals to become involved in activities that would develop participatory civic skills. According to this model, the resources required for political participation are "temporally prior" to the political acts themselves, thus participation in voluntary associations where resources can be acquired is considered a predictor of political participation. Further, Plutzer (2002) draws on Verba et al.'s (1995) model to argue that repeated engagement with an activity can gradually increase political resources, leading to eventual development of habitual voting. Ginwright’s (2007) ethnographic study of youth community engagement specifically aimed at developing “political consciousness” provides an example of the mechanism behind the development of civic skills. In particular, Ginwright refers to "critical social capital" which focuses on "collective dimensions of community change" and the importance of civic engagement in this process (p. 414).

Social capital development is a key component of the argument that voluntary organizations act as sites of political socialization. In particular, social networks are important factors in the development of political attitudes. Emler & Frazer (1999) argue that there are four distinct types of networks that impact individual political outcomes. The first type is an organization, which they deem to include formal institutions like schools or universities and other groups, like political parties or voluntary associations. These types of organizations act as a site for mobilization and political education. A second type of network is developed through informal, face-to-face interactions. Thirdly, they reference the national or local cohort effect, where shared experience and opinion shape individual opinions. Finally, they argue that access to formal networks, where political learning takes place, is strongly influenced by the

educational experience. Supporting this idea, scholars have shown that participation in social activism and protest and the resulting development of social capital and exposure to recruitment are associated with increased future political participation (Fisher 2012; Schussman & Soule, 2005). Similarly, Rossi (2009), in his study of three international voluntary organizations, finds that social capital (through peers and families) is influential in boosting youth civic engagement.

2.2.1.4 Political Context

Individuals receive political information that is filtered by their social context, by both people and institutions in their environment. Individuals in a community develop political attitudes and behaviors through several different mechanisms. First, political learning takes place through the filter of a particular community, influenced by its particular ideology, values, and norms (Cho et al., 2006). Different types of communities also affect behaviors in different ways. For instance, neighborhood level contexts can influence individuals through social interactions and norms, while state level contexts can be influential through "political mobilization and political stimuli" (p. 420). Some authors also argue that context matters more for "socially based" political participation, like activism, as opposed to voting, which is considered a more individual behavior, where social context has less of an influence (Pacheco, 2008). “Exogenous forces” (e.g. the ease with which a particular community can be mobilized) also influence exposure to political information in a community, as these would influence political decisions like whether a specific community is large enough to merit targeted attention during a political campaign. Length of residence and residential stability have also been found to be positively associated with civic engagement (Kang & Kwak, 2003).

Social norm enforcement within a community is also related to civic engagement. The process by which social norms influence behavior is a three-stage process (Gerber, Green, and

Larimer, 2008). First, the norm must be understood and acknowledged, so that there is a shared expectation of a certain behavior. Second, norms must be internalized; that is, norms must be accepted and deemed worthy despite potential costs associated with following them. Lastly, there must be an expectation that community members will enforce social norms. Gerber et al.'s experimental study found that the expectation of enforcement of norms within the neighborhood or community was an important influence on voting behavior.

Finally, the effect of living in an urban area can have indirect socializing effects on political outcomes. Parental income and education have been shown to be strong predictors of youth civic engagement. It follows then that urban youth, whose parents generally have lower levels of educational attainment and income, will be less politically engaged (Hart & Atkins, 2002). Trust is also important in predicting voting behavior, and adults in urban areas have been found to have lower levels of trust in community members or government. The lower quality of urban schools is another factor limiting urban youth civic engagement. Urban youth are further less likely to engage in voluntary activities, which have been established as important predictors of civic engagement. Hart & Atkins (2002) describe two different communities, one urban and one suburban, in order to explore the barriers to youth civic engagement. They explain demographics, schools, and community involvement in the two areas; however, they do not effectively connect these descriptions with any evidence that supports the claims made about barriers to youth engagement. O'Donoghue and Strobel (2007) similarly argue that community support in urban areas in generally low compared to other areas.

2.2.1.5 Media

Media consumption in its various forms can also influence the development of political attitudes and behaviors. Research on media consumption and civic engagement has shown that

"informational uses" of media of all types are positively associated with civic engagement outcomes by increasing political knowledge and resulting political discussion. Internet-based consumption also creates a space in which individuals can collectively organize (Shah, 2005).

Print and Broadcast Media

Research on the role of print and broadcast media in political socialization has had varying results. Jerit et al., (2006) hypothesize that "the relationship between education and knowledge should become stronger in an informationally rich environment" (p. 268) because those with more education have the skills to best consume and process information available in the news media (but not in broadcast media). Using content analysis and public opinion survey data, they find support for the hypothesis that the informational environment affects the relationship between knowledge and education. Newspaper coverage benefits those with the most education, while television coverage benefits those with the least education. However, although this study covered a time period where the presence of the internet was growing, the authors do not acknowledge the potential effect of internet media consumption on political knowledge.

Eveland and Scheufele (2000) used 1996 national election data to study the relationship between news consumption and the political knowledge gap by education level. They found that the political knowledge gap between more and less educated groups was smaller for those that were heavy television news consumers. The same relationship, albeit weaker, was found for print news consumption. No effect of broadcast or print media use was found for gaps in voter turnout by level of education. This holds true among youth as well; Claes, Hooghe, and Stolle (2009) found that watching broadcast news, political discussion, and number of books in the home were positively associated with political knowledge and future intent to participate. Again, however,

Claes et al. did not account for Internet media consumption in a time period when it was certainly relevant in the lives of most high school students.

Internet

In recent years, more studies have focused on the role of the Internet in political socialization. Shah (2005), for example, finds that online media positively influences political discussion, and, as a result, civic engagement, in many cases to a larger degree than print or broadcast media. Delli Carpini (2000) argues that "citizens must have the opportunity to become involved in public life in meaningful ways" and that these opportunities are shaped by the "civic infrastructure." Citizens must also have the resources necessary to allow them to participate, which youth often tend to lack. Thus, the Internet plays a key role in socialization in that it is different from other traditional media forms because it allows for easier development of networks and targeted recruiting among youth. It also "lower[s] the cost of their engagement," and increases quality and variety of activities in which youth engage (p. 347). Kenski and Stroud (2006) find that internet access is significantly associated with political efficacy, knowledge, and participation. However, internet variables account for only a small percentage of the variance in each model.

2.2.1.6 Education

Education is a well-established predictor of civic engagement; as such, theoretical models of how education impacts civic engagement outcomes are important to consider. Emler and Frazer (1999) propose three conceptual models to explain the effects of education on political outcomes, which can be either direct or indirect. The direct effects model posits that education directly influences political outcomes by developing cognitive skills, knowledge, and educational values,

which in turn influence political attitudes and behaviors. Higher levels of education imply that individuals have amassed more political knowledge and as a result will be more politically active. Similarly, Print and Coleman (2003) describe this type of political learning as "knowledge based," where students amass information about the political system. Existing research demonstrates this link. For instance, Niemi and Junn (1998) find that that the "amount and recency of civics coursework," the variety of topics covered, and teacher incorporation of current events discussion into class were positively and significantly associated with "overall political knowledge," even when controlling for individual achievement (p. 121). Studying voting behavior, rather than political knowledge, as an outcome, Callahan et al. (2010) find that both social connectedness and social studies performance have significant effects on voting behaviors among young adults.

Second, Emler and Frazer's (1999) correlated effects model posits that education and political behavior are outcomes of "third variables" (p. 259), that is, skills or traits that students develop through participation in formal education, namely cognitive ability, personality, socioeconomic status, and social capital. The same concept is reflected in Print and Coleman's (2003) description of developing "skills and processes," including critical thinking, active citizen participation, or cooperation, as a type of political learning, where students develop skills necessary for engaging politically, primarily through informal curricula. For example, Hart, Donnelly, Youniss, and Atkins (2007) use nationally representative longitudinal data from the National Education Longitudinal Study (NELS) to examine the effects of civic knowledge, extracurricular activities, and volunteering on civic engagement in young adulthood, measured by voting and volunteering eight years after high school graduation. They find that required community service (β=.44, $p<.05$) and extracurricular activity participation (β=.88, $p<.05$) were

positively associated with voting and volunteering in early adulthood. Similarly, using data from the National Education Longitudinal Study, Smith (1999) and McFarland & Thomas (2006) find that participation in voluntary associations in high school in the United States is positively associated with political participation in young adulthood. They argue that the activities in which students participate in the context of these voluntary organizations (e.g. public speaking, community service, debates, etc.) socialize students toward political participation.

Third, Emler and Frazer's (1999) relative effects model shows the connection between education and political outcomes as a function of stratification, where education influences an individual's social position, which in turn influences political outcomes. The important concept in this model is that education acts as a sorting mechanism whereby individuals are placed into different social ranks relative to one another; those with higher levels of education are theoretically closer to influential social networks, which, as was argued in question one, are important predictors of civic engagement. Existing research findings on education and political outcomes support the relative effects model. For instance, Verba and colleagues, in a number of studies (Verba et al., 1995; Brady et al., 1995; Burns et al., 2001), argue that education distributes political and social resources to students such that those with the most resources are the closest networks that provide access to political power. Verba, et al. (1995) show that parents influence children through SES, which leads to higher educational attainment and thus more political knowledge in children.

A final way to conceptualize political learning, according to Print and Coleman (2003), is through the development of democratic values through school or classroom climate. Dewey's (1902) work on democratic school environments provides a useful theoretical backdrop for this discussion. Dewey argues that the school should serve as a microcosm for the democratic

process, helping to develop children into active participants in democracy. That is, the school exposes children to the functions of society as replicated within a school, allowing students to identify with the larger culture and become active participants. With this in mind, Dewey argues that learning in schools should be tailored according to the connections between learning and students' life experiences. Scholars of civic education have since explored the effects of pedagogical strategies in addition to (or in comparison with) traditional civics curricula on civic engagement and democratic values, finding support for the thesis that democratic values and civic engagement can be promoted through active pedagogical strategies and a democratic classroom climate.

Research on civic engagement at the K-12 level supports the connection between school climate and civic engagement outcomes. For instance, Hahn (1999) finds support for the Deweyan notion of a democratic school environment fostering democratic values among students. The analysis showed that measures of classroom climate were positively correlated with political attitude scales, and qualitative data showed a positive relationship between political curriculum components and student interest in politics. One frequently studied civic education program, Kids Voting, is a program designed to promote youth civic engagement through K-12 curriculum where students study candidates and political issues; it is a participatory program where students have the opportunity to enact and practice civic skills like registering to vote, and learning about parties and candidates. McDevitt and Chaffee find that exposure to the Kids Voting curriculum increases student-parent discussion, which in turn "exerts an indirect effect on parental knowledge by stimulating the parent's attention to news" (p. 280).

Open discussion in classrooms is another climate factor that contributes to civic engagement outcomes. Pasek et al. (2008) point to the importance of open classroom discussion in developing civic engagement, as students gain critical thinking skills and develop a sense that "political information is useful for their interpersonal discussions" (p. 28). Similarly, Torney-Purta et al. (1983) found that pedagogical style was a strong predictor of political outcomes; specifically, support for free articulation of opinions in the classroom was positively associated with anti-authoritarianism.

2.3 RESEARCH ON CIVIC ENGAGEMENT IN HIGHER EDUCATION

2.3.1 Campus involvement

Consistent with findings in many areas of higher education research (Pascarella & Terenzini, 2005), the activities in which students engage and the experiences they have during college are often the strongest predictors of civic engagement. In this section, I review literature on the relationship between civic engagement outcomes and various types of campus involvement.

2.3.1.1 Service learning

Within the literature on civic engagement in higher education, a great deal of the research is focused on service learning. Service learning has emerged as a commonly accepted practice in mainstream university curricula as a tool for bolstering learning outcomes and civic engagement. At the university level, service learning is typically credit bearing (Lounsbury & Pollack, 2001;

Morgan & Streb, 2001), which is an important factor to account for when considering student motivation for community service participation.

Many scholars have focused on the impact of service learning on *behaviors* related to civic engagement, which include behaviors that are explicitly political in nature (e.g. voting, or contacting a government representative), and behaviors related to community engagement, like volunteer work. Looking at explicitly political behaviors, in a large scale study of the effect of participation in the Corporation for National Service's Learn and Serve America Higher Education (LASHE) service learning program, Astin and Sax (1998) use data from the 1990-1994 Cooperative Institutional Research Program (CIRP) Freshman Survey and College Senior Survey. They find that participation in a service learning program is positively and significantly associated with twelve "civic responsibility" outcome variables, which includes measures like commitment to "participate in a community action program" or "influence the political structure" (p. 256). Simmons and Lilly (2010) use National Survey of Student Engagement (NSSE) data to analyze effects of different college experiences on civic engagement at one four-year university. They find that service learning, in addition to "active and collaborative learning" and "enriching educational experiences" is positively associated with political behavior outcomes, like contacting public officials or media and signing petitions. These findings are consistent with the body of literature on civic engagement in college, but the single-institution sample and relatively limited outcome variable limit the study's generalizability.

Behaviors related to community engagement have also been shown to be impacted by participation in service learning. Giles and Eyler (1994) investigate the extent to which participation in a required service learning course at the university level can have an effect on civic engagement and social responsibility, comparing pre- and post-test means of a variety of

measures of civic engagement. They find that, consistent with results of studies on the high school context, program participation led to increased commitment to future community service. The study, which the authors acknowledge is "exploratory," is limited in scope, using just one class of students participating in a service learning course as a sample. Seider et al. (2011) investigate the effects of a mandatory service learning program in a university philosophy and theology program. They find that participation in the program led to greater positive changes in future service intentions than those who did not participate in the program. They also find that gender, spirituality, and exposure to poverty were significant predictors of program effects on students. The qualitative component of their research shows some insight on the mechanism behind the program, focusing on the difference between service learning and community service, in that students viewed the program as a civic responsibility rather than charity (p. 612). This points to the importance of service learning programs having a clearly defined purpose.

In addition to behaviors, scholars have examined the impact of service learning programs on changes in civic attitudes. For instance, Vogelgesang and Astin (2000) use longitudinal CIRP data from 1994-1998 to compare the effects of college-sponsored service learning and independent community service; they find that for measures of commitment to promoting racial tolerance and to social activism, service learning was a stronger predictor than independent community service. Keen and Hall (2008) argue that sustained interaction with service programs throughout the college experience are necessary for the development of civic outcomes like recognition of diversity and increased dialogue (p. 71). They conduct a study of recipients of the Bonner Scholarship, which is granted to students at 25-35 liberal arts colleges, where they found that the most significant change after program participation was the amount of importance students placed on dialogue. Social justice issues were also more important to seniors, but the

statistical significance was lower (p. 65). This, however, would lead to selection bias given that students who apply for such a scholarship would be more inclined to participate in service to begin with, which the authors acknowledge (p. 62). Looking at a different type of civic attitude change, Engberg and Fox (2011) are interested in the relationship between service learning participation and "global perspective taking." They use data from the Global Perspective Inventory (GPI), a survey administered to 46 public and private institutions. They use dependent variables based on the scales included in the survey; outcomes were related to interpersonal, intrapersonal, and cognitive scales. The treatment of interest was whether a student participated in service learning during the postsecondary experience. They used linear regression models, finding that service learning was positively and significantly associated with "responsibility to make a difference in society" (p. 99). They also find differences by race/ethnicity; however, effects for other attitude related outcomes are less consistent.

While these studies demonstrate positive effects of service learning participation on various civic engagement outcomes, there are several methodological concerns. The literature on service learning in higher education in particular lacks coherent methods and theoretical approaches. It is clear from the varied datasets and frequent reliance on small convenience samples, that more attention to methodological consistency is warranted in order to more effectively make arguments about service learning policy. Further, it is important to note that due to the nature of research looking at immediate program impact and little research using longitudinal datasets that measure outcomes in adulthood, many studies measuring behavioral impacts studying future intentions related to behavior, or shorter term outcomes in general.

2.3.1.2 Other types of campus involvement

In addition to service learning, research on civic engagement in higher education has also connected other types of campus involvement with civic engagement outcomes. For instance, Cress et al. (2001), using longitudinal data from the CIRP Freshman Survey and College Senior Survey, find that participation in leadership activities and training programs has an impact on a range of different outcomes related to skills, values, and involvement. Including "commitment to civic responsibility." Leadership activities include activities like workshops, seminars, mentoring, or community service, and include both curricular and co-curricular experiences. The study was restricted to just 10 institutions, however, so generalizability is limited. Looking at a more specific type of program, Smith (2012) investigates the effects of participation in a program designed to promote voting, coupled with a class on civic participation, on civic outcomes of college students. The program aimed to expose students to the electoral process through experiential learning. She finds differences in outcomes between community college and four year university students, suggesting the importance of controlling for institution type. In general, the effects of program participation are greater in the community college group. Qualitative responses show an increased sense of community belonging, increased willingness to participate in similar activities in the future, and appreciation of the value of voting. These responses are similar across both groups. This study, like many of its kind, examines only pre- and post-program results of a small sample of students participating in one specific program.

In a rather different study, Hu (2008) examines whether financial aid awards impact civic engagement outcomes with data from three waves of surveys conducted on Gates Millennium Scholars (GMS) cohorts of 2000 and 2001. His hypothesis is that financial aid could support student engagement in college by reducing financial burden. Using a three step hierarchical

linear model, he finds that there is a positive and significant effect on democratic values for receipt of the GMS, and these awards were associated with greater engagement in college. He also finds a positive and significant effect on civic outcomes for college involvement in general. While he did use a comparison group of non-recipients, the selection of the group was not clearly described, nor were any methodological approaches to mediating a likely selection bias associated with receiving the GMS.

2.3.2 Campus climate and institutional influences

There is a relatively large body of research that connects campus climate to a number of student outcomes, including retention (Museus et al., 2008), faculty and student diversity (Piercey et al., 2005; Rankin & Reason, 2005), or academic self-concept (Cuellar, 2014). While there is considerably less research on the impact of campus climate or other institutional factors on civic engagement outcomes, some higher education scholars have shown that the college environment plays a role in influencing civic engagement outcomes in college students (Gayles et al., 2012). For instance, Bryant, Gayles, and Davis (2011) use structural equation modeling to examine the relationship between civic values and civic behaviors (e.g. institutional culture, campus involvement, social activism, charitable actions) among college students in the United States, finding that college culture positively influences social activism in students. Barnhardt et al., (2015) study the ways in which students' perceptions of campus climate impact their development of skills and attitudes that support civic engagement. They use a mixed-methods design, where the quantitative piece of their analysis uses 2007 data from the Personal and Social Responsibility Institutional Inventory developed by the Association of American Colleges and Universities. They supplement the quantitative analysis with a qualitative content analysis of

open-ended questions on the PSRI instrument. The quantitative evidence points toward the effects of individual experiences, like volunteering, discussing politics with peers, and level of academic effort, but the qualitative evidence suggested that campus climate inputs are also at work in promoting civic engagement.

Smaller scale qualitative work also points to the influence of campus climate. For instance, Einwohner and Spencer (2004) use data from campus newspapers to examine the presentation of student activism against sweatshops. They take a grounded theory approach when analyzing articles, briefs, opinion pieces, and letters from the campus newspapers at each of the two campuses they studied, finding that elements of the campus climate at each institution influenced the ways in which the issue was presented. Goldfinger (2009) studies "Democracy Plaza" a public space at Indiana Univesity - Purdue. It is an outdoor space with chalkboard panels to encourage written expression and is set up on the interior as an event space to support spoken expression and communication. Although this feature provides a space for discussion and attracts students, Goldfinger does not investigate any outcomes of engagement with this plaza.

Beyond campus climate, Lott et al. (2013) use data from the Baccalaureate and Beyond (B&B) dataset to study differences in civic engagement between graduates of public and private institutions. They use structural equation modeling, and find that graduates of public institutions have higher levels of political participation than graduates at private institutions one year after graduating (1994), but private institution graduates' civic engagement 9 years later is more strongly influenced by their 1994 participation than for public institution graduates. They also find that the number of social science credits is positively associated with political participation, more strongly so for graduates of private institutions. They were not, however, able to control for a range of pre-college influences given limitations of their data.

2.3.3 Diversity programming, ethnic organizations and diverse democracy outcomes

Another direction of research on civic engagement in higher education is related to participation in diversity-related activities or ethnic-based organizations and the impact these activities have on civic outcomes, specifically those related to "diverse democracy." Interested in the effect of participation in curricular and co-curricular activities related to diversity and interactions with diverse peers in college on students' motivation to promote social justice, Zúñiga et al. (2005) analyze survey data from one institution that was intended to evaluate a diversity initiative. They use blocked hierarchical regression to study the effect of involvement in diversity activities on outcomes that measured student motivation to take action to promote social justice and address students' own prejudices. Participation in ethnic or cultural programs or activities has a positive (albeit small) effect on motivation to reduce prejudices, but it does not have an effect on social justice orientation. It should also be noted, however, that a student pre-test before program participation confirmed that students with higher motivation to pursue the outcomes were the strongest predictors of the outcomes, pointing to the importance of methodologically accounting for selection bias.

In a similar, but larger scale study, Bowman et al. (2015) use multilevel propensity score analysis to look at civic outcomes after college graduation as a result of participation in racial and/or ethnic student organizations. They use data from the CIRP Freshman Survey, College Senior Survey, and Civic Engagement Survey (conducted 6 years out of college) to study how participation in these organizations affect outcomes including community leadership, volunteer work, philanthropy, news consumption, interest in keeping up on politics, political efficacy, equal opportunity for success, leadership ability, and cooperativeness. The find that participation in racial or ethnic organizations is associated with higher levels of civic behaviors, after

adjusting for the propensity score in a hierarchical linear model. Consistent with Zúñiga et al.'s findings, participation in ethnic or racial organizations was less predictive of "self-rated traits" (p. 141), and attitudes. The use of methods that allow for some mediation of selection bias is a strength of this study.

2.4 CONCEPTUAL MODEL

Based on the existing literature in sociology, political science, and both K-12 and postsecondary education, I present a conceptual model that incorporates agents of political socialization, models of political learning, and commonly accepted measures of civic engagement outcomes.

As shown in the previous section, there are several well-established "agents" of out of college political socialization, including family, social class, political context, media consumption, and education. These agents of political socialization will have played a role in developing student characteristics both prior to the time of matriculation and continuously throughout the life course. For instance, although family socialization may take place early in life, the effects of the socialization are lasting (e.g. Jennings et al., 2009) and may interact with other socializing experiences throughout an individual's life. Another example is the variation in political contexts throughout a person's life and their interactions with socialization experiences. The review of the literature on civic engagement in higher education provides a framework with which to inform the college experience variables by highlighting the types of college experiences that have an impact on civic engagement outcomes. I also draw on Print and Coleman's (2003) three different types of learning and Emler and Frazer's models of education's political effects (described in more detail in section 2.2.1.6). Based on this framework, the college experience

variables I include fall into these categories: 1) knowledge-based learning, or the academic experiences an individual has in college; 2) skills or processes developed through co- and extra-curricular activities, or "non-academic" experiences; 3) democratic values influenced by institutional factors; and 4) changes in attitudes during the college experience. Figure 1 below presents a visual representation of the model. The out of college influences are presented in a box that includes all of the other model components in dashed lines, to show the continuing and effects of these factors. The double sided arrows between the college experience variables represent the potential interactions between the variables.

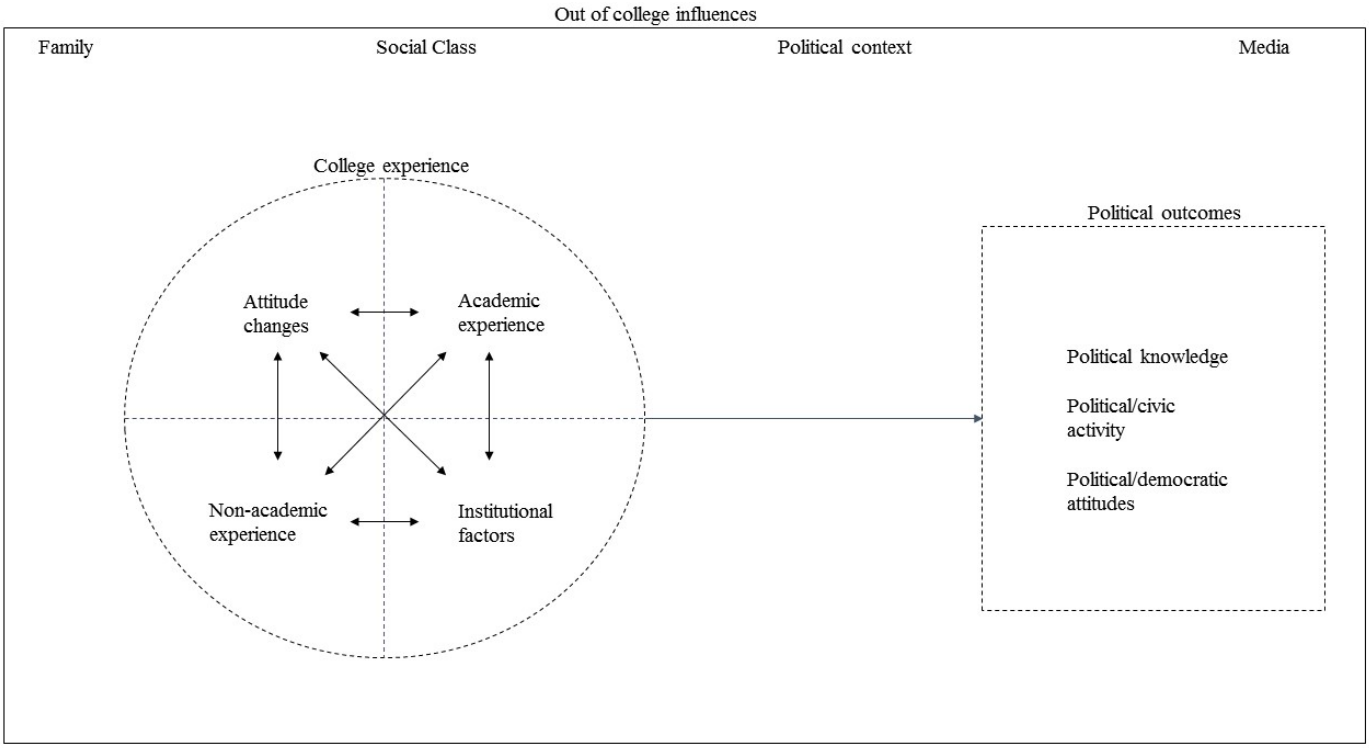

Figure 1. Conceptual Model

2.5 SUMMARY

The earliest studies of political socialization focused on the family as the primary agent of socialization, and as the line of inquiry grew, researchers demonstrated other influences on political outcomes, including media, social class, education, and volunteerism. Despite the substantial amount of variation in theoretical approaches to the study of civic engagement, there is not much overlap between them. Studies of political socialization would benefit from a more interdisciplinary approach that looks at the effects of different agents of political socialization in tandem; as such, I advance a theoretical applying political socialization theories to higher education research.

The review of the higher education literature demonstrates the importance of various aspects of the college experience in influencing civic engagement outcomes. This takes place through several different processes, either directly or indirectly. Additionally, the bulk of the research on civic engagement in higher education focuses on shorter-term, or young adult outcomes; the persistence of effects throughout the life course is understudied. Based on the literature on political socialization and civic engagement in higher education, I propose a conceptual model that accounts for the importance of both out of college and in college factors in influencing civic engagement outcomes.

3.0 METHODS

In this chapter, I provide a literature review related to methodological approaches and challenges in the study of political socialization. Informed by this literature, I describe my analytical approach for this study, propensity score matching, and its usefulness in dealing with common challenges in this field of research. Because I use two different datasets in this study, I present the detailed discussions of datasets and variables in the following two chapters (4 and 5), where I describe the analysis and findings.

3.1 METHODOLOGICAL LITERATURE REVIEW

Given the varied disciplinary approaches to the study of political socialization and civic education, it is not surprising that there are many analytical models and methodological challenges associated with this body of research. There are also, however, substantial commonalities among the different disciplinary perspectives in terms of research methods. In this section, I first discuss the most common data sources and methods of data collection. Next, I examine the various ways in which civic engagement has been operationalized in the research and the challenges associated with such a nebulous outcome variable and follow up with the most common explanatory variables used in quantitative studies of civic engagement. I then dedicate a brief section to the scant qualitative and mixed methods research, and I conclude with

a discussion of a substantial methodological challenge in research on civic engagement, self-selection bias. In order to highlight and fully consider the diverse range of approaches and data sources, I do not limit the methodological review to research in higher education. Although some data sources and methods are especially appropriate for higher education research, approaches from K-12 education and from different disciplines also provide options worth considering.

3.1.1 Data

3.1.1.1 Secondary data

Quantitative research on civic education and political socialization relies heavily on secondary data. In particular, data from large-scale national surveys are some of the most widely used, including the 1988 National Assessment of Educational Progress Civics Assessment (Dill, 2009; Niemi & Junn, 1998), the National Education Longitudinal Study (Hart et al., 2007; MacFarland & Thomas, 2006), the National Household Education Survey (McIntosh et al., 2007), the National Longitudinal Survey of Adolescent Health (Callahan et al., 2010). For comparative work on political socialization, the IEA Civic Education Study is a useful source of information (Campbell, 2007; Torney-Purta, 2002). At the higher education level, data from the Higher Education Research Institute at UCLA is frequently used to analyze civic outcomes; however, these surveys of college freshman and college seniors, although comprehensive, are not nationally representative (Astin & Sax, 1998; Vogelgesang & Astin, 2000). Also used in higher education, although less frequently, are the Baccalaureate and Beyond (Lott, et al. 2013, and the National Survey of Student Engagement (Simmons & Lilly, 2010).

All of these surveys provide a wealth of information that is useful for researchers interested in civic education and political socialization; however, each dataset covers a specific

range of variables that can be limiting for researchers. Beyond these large-scale datasets, studies that use primary data can provide more specificity, but overwhelmingly rely on pre- and post-program assessment and often use small, convenience samples. These are most often studies that assess the impact of service learning programs in higher education.

3.1.1.2 Program evaluation

Scholars using primary data often rely on pre- and post-surveys to assess effects of programs targeting civic engagement; this is the case especially with studies of service learning, which are discussed in this section. For instance, Feldman et al. (2007) conducted a quasi-experimental study in 26 Philadelphia high schools, both public and charter, during the 2002-3 academic year. They distributed pre- and post-surveys to students during both the fall and spring semesters, in order to determine effects of the program from participation in one or both semesters. McAdam and Brandt (2009) conducted a follow up survey in 2001 with 1,124 individuals who had been accepted to Teach for America to assess civic engagement outcomes of participation in Teach for America. Studies of service learning often fit into this category, given that program evaluation is the dominant mode of inquiry (Bringle et al., 2013). Additionally, the large amount of variation in service learning as a field of study (theories of learning, desired outcomes, unit of analysis, etc.) results in inconsistent and sometimes lower quality research (Steinberg et al., 2013). Keen & Hall (2008) note that the field of higher education lacks a clear distinction between the terms service learning and civic engagement (p. 60). Further, Seider et al. (2011) point to the diversity not only in definitions of service learning, but also in program goals; some can be more focused on civic or political outcomes than others (p. 599).

Existing studies of service learning tend to use small samples, many of which are convenience samples. For instance, Giles and Eyler (1996) measure civic engagement by

comparing pre- and post-test mean scores from students in a required college service learning program, studying only one class. Service learning research also relies heavily on pre- and post-test mean score comparisons, which can be problematic; McAdam and Brandt (2009) critique the focus on pre- and post-test studies in the literature on civic engagement, calling it a "clinical trial analogy" (p. 958). They argue that this type of study fails to account for variation within groups undergoing treatment. Feldman et al. (2007) recognize the limitation in their study that they were unable to account for variation across schools and in levels of participation in program components, lending support to McAdam and Brandt's (2009) "clinical trial analogy." Seider et al. (2011) administered pre- and post-surveys to a sample of 362 students participating in a Catholic university's service learning program, in addition to conducting interviews with a subsample of students. By controlling for pre-test motivation in the statistical model in order to predict "only outcome variance not accounted for by the pretest" (p. 607), the authors provide an alternative from simpler pre- and post-test models that dominate the research on service learning.

3.1.2 Variables

A number of challenges exist in operationalizing civic engagement, particularly those related to the multiple conceptions of the nature of citizenship and participation (Emler & Frazer, 1999). There are also challenges regarding the extent to which individual membership in a community or organization directly affects civic engagement, and the importance of activism in studying levels of participation (Sherrod et al., 2013). Thus, how to operationalize civic engagement is a key question for researchers in the fields of political socialization and civic education. In response to these challenges, some scholars have proposed conceptual models attempting to synthesize the varied definitions and approaches.

Torney-Purta et al. (2013) advance a framework categorizing independent variables in three ways: “person variables,” dealing with individual characteristics like race/ethnicity or gender; “context variables,” referring to factors like the educational setting of participants; and “process variables,” focused on measures like pedagogy. Dependent variables are then divided into the following categories: “meaning” (political knowledge), “identity,” “efficacy,” and “practice” (individual action). Another model, Niemi and Junn’s (1998) “exposure-selection” model, posits that students are both exposed to political information, which is influenced by structural factors in the school (eg.: pedagogy, curriculum) and home (eg.: parents’ education, television watching). That exposure, however, is not sufficient to produce political knowledge outcomes. Students must also “select that information for retention” (p. 53), which happens through individual characteristics, like race or gender, or interest in school or subject matter.

Most empirical models operationalize political participation using outcome variables like voting, campaign work, community service, or protest as outcome variables (e.g. McFarland & Thomas, 2006; Quintelier, 2010). Lott et al. (2013) note that studies of civic engagement often either create a scale of participation that includes a number of different political activities, or they use dichotomous variables regarding participation. Quintelier (2010), for instance, uses a binary “political participation” variable that measures participation in at least one of 10 activities, from wearing a badge or t-shirt, to becoming a member of a political party. While this is a useful indicator of whether respondents have engaged in any form of political activity, it fails to adequately capture the variation in the commitment or risk level of political activity. That is, signing a petition or wearing a t-shirt or badge could involve less commitment (or potentially less risk, depending on the context) than participating in a demonstration (Shafiq et al., 2014).

3.1.3 Methods

One of the most common statistical methods used in the analysis of civic engagement is hierarchical linear modeling. Given large number of studies on civic engagement that focus on the connection between education and engagement, it logically follows that HLM should be frequently used, as research in educational settings involves dealing with data that is clustered in nature (Dill, 2009; Kahne & Sporte, 2008; Hurtado et al. 2002; Callahan et al., 2010; Quintelier, 2010). Additionally, scholars investigating the effects of political or neighborhood context often use HLM to account for clustering in geographic data (Pacheco, 2008; Cho et al., 2006; Kang & Kwak, 2003). Authors also use structural equation modeling (Bryant et al., 2011; Gayles et al., 2012) and factor analysis (Hurtado et al., 2002).

Longitudinal analysis is also a common method in studies of civic engagement. The benefit to conducting longitudinal studies is that cross-sectional models do not account for the effect of inertia on voting behavior, as they assume that something like a decrease in income would lead to lower chances of voting, despite the fact that an individual may have already developed voting inertia (Plutzer, 2002). Thus, Plutzer (2002) uses latent growth models, which allow him to separate starting points and growth.

Torney-Purta et al. (2013) argue that qualitative methods like interviews and focus groups enhance survey data in studies of civic engagement. For instance, Niemi and Junn (1998) use open-ended questions included on the NAEP to confirm inferences they made using data from multiple choice questions. In the same manner, Hahn (1999) supplements survey data with policy documents, teacher and student interviews, and classroom observations. Kahne et al. (2006) use quasi-experimental design to study the effects of the CityWorks curriculum in five Los Angeles high schools, utilizing pre- and post-surveys and control group comparisons. The

sample included urban and suburban schools and ethnic and socioeconomic variation. They use t-tests to examine differences in student attitudes after participation in the CityWorks program and supplement the survey data with teacher interviews and student focus groups. Seider et al. (2011) use qualitative data revealing the program's impact in students' service-related career aspirations to complement their quantitative findings. Barnhardt et al. (2014) use mixed methods to investigate the impact of campus climate on civic engagement outcomes, which proves to be important given that the qualitative data highlight different findings than the quantitative data. Qualitative and mixed methods studies provide an opportunity to better understand the mechanisms at work behind different agents of socialization.

3.1.4 Selection bias

A challenge that is inherent in studies of civic engagement is the issue of self-selection. Some scholars point to the challenge in separating the outcome and explanatory variables in models that attempt to explain political learning or participation; that is, those who are more politically inclined to begin with may be more likely to engage in voluntary associations. For example, McAdam and Brandt's (2009) study of civic behaviors in individuals accepted into the Teach for America program highlights the challenge of selection bias; those who are accepted to TFA are individuals who demonstrate high levels of civic engagement prior to program participation. Similarly, Egerton (2002) found that, among British household survey respondents, higher education did have an effect on civic and religious participation; however, differences in participation were present before entering higher education, indicating the presence of the selection effect. Also important to note, however, is Quintelier's (2010) assertion that the problem of self-selection effects is more notable when the predictors are of a voluntary nature;

with predictors of civic engagement like required civic education curricula, however, students do not as commonly self-select.

In higher education research, many scholars have demonstrated the importance pre-college characteristics on a wide variety of student outcomes (e.g., Ishitani, 2003; Roderick, Nagaoka, & Coca, 2011; Wolniak & Engberg, 2010). Further, several studies on civic engagement in higher education provide evidence that self-selection is a substantial methodological challenge. For example, Hurtado, Engberg, Ponjuan, and Landreman (2002) study the effect of student experiences before entering college on three dimensions of democratic behavior: "ability to see the world from someone else's perspective, beliefs about whether conflict enhances democracy, and views of the importance of engaging in social action activities during college" (p. 165). The authors are primarily concerned with outcomes related to functioning within a diverse multicultural society. They use data from the national research project "Preparing Students for a Diverse Democracy," which surveyed students at three universities based on student demographics (mostly Caucasian students) and diversity-related initiatives. The sample, however, is skewed toward high achieving, higher socioeconomic status students (p. 169). Although the outcome of interest in this case is different than most other studies reviewed here, there are several relevant findings. Their key finding was that pre-college engagement is a stronger predictor of democratic outcomes than demographic or environmental variables. Rowan-Kenyon et al. (2007) similarly found that pre-college characteristics were stronger predictors of the outcome than the original treatment of interest. They studied the effects of living learning programs on student sense of civic engagement, using blocked hierarchical linear regression. Living learning programs included those with a focus on civic engagement and others without a civic engagement focus. They ultimately found that the strongest predictors of

the civic engagement outcomes in the regression models were the pre-college perceptions about co-curricular involvement.

Authors have dealt with selection bias primarily by incorporating control variables into statistical models. McFarland and Thomas (2006), for instance, find that the effect of voluntary associations can be separated from self-selection. They use multiple models and interactions between social class and other explanatory variables allows them to separate the effects of self-selection and socialization on political outcomes, and they find statistical support for the hypothesis the political participation is influenced by participation in voluntary organizations, independent of self-selection effects. Niemi and Junn's (1998) "exposure-selection" model posits that students are both exposed to political information, which is influenced by structural factors in the school (eg.: pedagogy, curriculum) and home (eg.: parents' education, television watching). That exposure, however, is not sufficient to produce political knowledge outcomes. Students must also "select that information for retention" (p. 53), which happens through individual characteristics, like race or gender, or interest in school or subject matter. Others have controlled for prior attitudes or commitments (Bryant et al., 2011; Kahne & Sporte, 2008; O'Donoghue & Strobel, 2007).

Quintelier (2012) investigates whether political outcomes and membership in deliberative organizations are related due to socialization within organizations or a self-selection effect, finding that both factors influence political interest, and that sustained participation in associations is the strongest predictor of political socialization among 16- and 18-year old students in Belgium. However, she is unable to account for the direction of influence of political interest; although there is a strong relationship between political interest and participation in associations, it is not clear whether political interest made respondents more likely to become

engaged in the first place. Niemi et al. (2000) attempt to correct for the self-selection issue by running two separate models for students whose participation in community service was mandatory and those for whom participation was optional.

Study design also helps to account for self-selection bias. Metz and Youniss (2005) took advantage of the timing of implementation of required high school service programs to perform a quasi-natural experiment. By surveying voluntary activities of those who had reached graduation before the program was implemented, they were able to determine which students in this group were more inclined to volunteer. The second group of students, who did participate in required service, demonstrated their proclivities for service by speed of completion of the required 40 hours and voluntary activity beyond the required minimum. They found that the students who were initially less inclined to volunteer became more likely to vote and participate in conventional civic activities, and be more knowledgeable about politics, after participation in the program. The program did have a substantial impact on students who were already politically inclined. Similarly, Students in Seider et al.'s (2011) control group were students who had been interested in the program but were given alternate status on a random basis. Bowman et al. (2015) take this approach further, using propensity score matching to create a simulated control group in their study of the impact of ethnic and racial organizations on diversity related outcomes. This approach is still quite rare in the study of civic engagement, however, especially at the higher education level.

3.1.5 Summary of methodological literature

As is demonstrated by studies showing the importance of pre-college characteristics and of accounting for selection bias, studying the college experience in isolation may ignore potentially

important connections between early political socialization experiences. Despite the variety of disciplinary and theoretical approaches to the study of civic engagement, there are commonalities in methods used and challenges faced. One common challenge is the operationalization of civic engagement, which has been done in a wide range of ways, from proposing comprehensive models, to creating index variables, to using several outcome variables in one study. The research on civic engagement is primarily quantitative in nature, though there are some qualitative and mixed methods studies, and some of the most common statistical approaches are hierarchical linear modeling, due to the clustered nature of data on education, and longitudinal analysis.

3.2 ANALYTICAL APPROACH

The methodological literature reviewed in the previous section demonstrates that there is a need for a more coherent theoretical approach and more rigorous methods to account for the persistent problem of selection bias. As such, I use propensity score matching to mediate the bias associated with self-selection into activities that socialize students politically. I also use an empirical model informed by the literature on political socialization and civic education, contributing to the existing research in higher education on civic engagement both methodologically and theoretically.

3.2.1 Propensity score matching

Traditional regression models are built on the assumption that values of independent variables are randomly assigned; however, in this study, key independent variables may be correlated with unobservable factors related to family background and family political socialization. Put another way, a dummy variable for participation in a particular school sponsored activity or attendance at a certain type of postsecondary institution in a traditional regression model would assume exogeneity, which, in the context of this study, cannot be assumed, especially given descriptive statistics for participation based on family socialization that suggest a relationship between parental socialization and activity participation.

Following the Neyman-Rubin counterfactual framework, in order to establish causality, a researcher would identify a counterfactual (the potential outcome had a participant been assigned to control instead of treatment, or vice versa) by testing the differences in mean scores between a treatment and control group to get the average treatment effect (ATE). However, this counterfactual framework only holds when two assumptions are met: the ignorable treatment assignment assumption and the stable unit treatment value assumption (SUTVA). The ignorable treatment assignment assumption is essentially an assumption of exogeneity, whereby a respondent's assignment to a treatment is independent of the outcome, controlling for other covariates. SUTVA assumes that assignment to treatment does not result in changes in outcomes for other respondents (Guo & Fraser, 2010; Mayer, 2011). As the preliminary descriptive statistics show, student participation in different extracurricular activities varies by the level of family political socialization to which they are exposed. Thus, given nonrandom assignment to school-sponsored activities, traditional regression models are inadequate for estimating treatment effects of these activities on political outcomes.

Guo and Fraser (2010) identify three methods for balancing data, a means of dealing with violations of these assumptions when attempting to establish causality. The first, traditional regression analysis with covariate controls requires sources of bias to be "overt," such that all appropriate covariates are included in the model. As such, this method is inappropriate for this analysis given the established selection bias threat. The second method, matching, involves matching participants who are similar on a vector of covariates other than the treatment of interest. The third, stratification, involves grouping participants into groups where the individuals in each strata are as similar to each other as possible. With matching and stratification, the researcher encounters difficulty as the amount of control variables increase and matching on all covariates becomes more challenging, which is referred to as "dimensionality" (p. 80).

In response to these issues, propensity score matching and stratification help to deal with the dimensionality problem by reducing the number of covariates into a single propensity score on which researchers can match or stratify participants. Propensity score analysis balances data on observed characteristics so that participants in treated and untreated groups are statistically similar, essentially creating a simulated control group. While it is possible that participants may vary on individual control variables within a group, this difference will not be systematic (Guo & Fraser (2010). The propensity score, then, is the probability that an individual will participate in the treatment, conditional on a vector of covariates *X* for population *i*, where D represents treatment assignment (Becker & Ichino, 2002).

Equation 1. Propensity score defined

$$P(X_i) = p(D_i = 1|X)$$

Given the usefulness of this method in dealing with nonrandom assignment to treatment, it is especially appropriate in helping to mediate the self-selection bias inherent in studies of political socialization and education.

In addition to the average treatment effect (ATE), which provides, for the entire population, the average effect of receiving the treatment, another estimate of treatment effects is the average treatment effect on the treated (ATT), which is the effect of participation in the treatment for those who actually participated. The ATT is defined as follows for population *i*, where *D* represents assignment to treatment, *Y1i* and *Y0i* are the two potential outcomes for assignment to treatment and the counterfactual, and *X* is the vector of conditioning covariates (Becker & Ichino, 2002).

Equation 2. Average treatment effect on the treated

$$E\{E\{Y_{1i}|D_i = 1, P(X_i)\} - E\{Y_{0i}|D_i = 0, P(X_i)\}|D_i = 1\}$$

In this study, I use the ATT, which, as opposed to comparing all individuals in the sample, compares observations with similar likelihoods of participating in the treatment (Melguizo, Kienzl, & Alfonso, 2011). Further, for those interested in informing higher education practice, the impact on those who actually participated in the treatment may be of greater interest.

There are several different approaches to matching observations from the treated and untreated groups that vary in how many participants are matched to each other and the algorithms used to make matches. I test several matching approaches in order to determine whether results are consistent across different matching algorithms, which would indicate that the propensity score model is robust (Guo & Fraser, 2010; Khandker et al. 2010). The first matching approach is nearest neighbor matching without replacement using the propensity score,

which matches each treated participant with the untreated participant to whom the most similar propensity score has been assigned. The second approach, stratification matching, divides the sample into strata to test the mean difference in the outcome variable between treated and untreated groups in each strata. Within each block, the sample is balanced between treatment and control, and these samples can be treated as random (Becker & Ichino, 2002). The weighted mean of the effects in each strata provides the overall ATT.

A third propensity score matching approach I test is inverse probability weighting, which operates in a similar fashion as sampling weights, where it creates weights that are the inverse of a respondent's probability of selection into the treatment in which he participated. It uses those weights to construct a comparison group (Austin, 2011). Finally, I use direct nearest neighbor mahalanobis metric matching without the propensity score to further test the robustness of the results from the above propensity score matching approaches. Unlike approaches that match on the propensity score, this approach matches treated and untreated participants on the vector of conditioning covariates rather than on the propensity score. This approach is used only for robustness checks, because matching on a larger vector of covariates introduces the problem of dimensionality, where matching becomes difficult and the sample size retained decreases.

3.3 SUMMARY

The literature on political socialization and civic engagement in education highlights several methodological approaches to studying civic engagement, and there are a number of datasets that are appropriate for the field. However, most of these approaches fail to address a serious methodological challenge: selection bias. In order to reduce the bias associated with self-

selection, I use propensity score matching, which creates a simulated counterfactual by matching treated and untreated observations on a vector of observable characteristics. In Chapters 4 and 5, I discuss in more detail the datasets I use and the propensity score matching approach taken for each of the three research questions, including descriptions of the conditioning models, treatments, and outcome variables.

4.0 ANALYSIS USING THE EDUCATION LONGITUDINAL STUDY

4.1 INTRODUCTION

As demonstrated in Chapter 3, analyses of civic engagement are heavily influenced by selection bias, and more rigorous methodological approaches are needed in working to mitigate its effects. This chapter provides a methodological contribution to the literature on civic engagement by using propensity score matching on several different treatments and outcomes, which, in the current research landscape on civic engagement, is extremely limited. In this chapter, I present results for the first two research questions:

- RQ1: What is the impact of extracurricular participation in college on young adult civic engagement?
- RQ2: What is the impact of attending a private postsecondary institution on young adult civic engagement?

I discuss the conditioning models and findings, both average treatment effects on the treated for the full matched sample and average treatment effects by propensity score stratum for both treatments using data from the 2002 Education Longitudinal Study from the National Center for Education Statistics (ELS:2002).[1]

[1] This manuscript utilizes secure data from the National Center for Education Statistics. Please direct any inquiries regarding the data to the Institute for Education Sciences data security office, IESData.Security@ed.gov.

4.2 DATA

In light of the variety of datasets available, the primary dataset that I use for analysis in this study is the 2002 Education Longitudinal Survey (ELS:2002), which provides detailed information about the high school and college experience and young adult civic outcomes. The variables available and the survey waves in both high school and college make the ELS dataset well suited for addressing this study's objectives, because it provides both postsecondary experience and context from which to select treatments and pre-treatment variables related to the high school experience and family socialization to inform the propensity score conditioning model. ELS:2002 is particularly useful for this study given the wealth of information about family background, school involvement, and political and community engagement.

ELS:2002 is a nationally representative longitudinal survey administered by the National Center for Education Statistics (NCES) that surveys students at four time points: 10th grade (2002), 12th grade (2004), two years out of high school (2006), and eight years out of high school, when most respondents were around 26 years of age (2012). The survey aims to understand student paths and transitions from high school into postsecondary education and the workforce. Students are surveyed at all four waves, and the student surveys are supplemented by surveys of parents, school administrators, librarians, and math and English teachers. The perspectives of the parents in particular add to this study by providing information directly from parents rather than relying on student interpretation of parent perspectives or actions. ELS is the fourth longitudinal survey of high school students conducted by NCES; it follows the 1972 National Longitudinal Survey (NLS), the 1980 High School and Beyond (HS&B) survey, and the 1988 National Education Longitudinal Survey (NELS). ELS builds on these prior surveys,

allowing for cohort comparison, which is useful in comparing the results of this study to existing studies using older NCES longitudinal datasets (Ingels et al., 2014).

ELS:2002 utilizes a two stage probability sample. In the first stage, a probability sample of 750 public, private, and Catholic schools was selected, with an oversampling of private and Catholic schools. 92% of students attended public schools, 4% attended Catholic schools, and 4% attended other private schools. The second stage sampled students from each school (17,750[2] eligible students overall), with an oversampling of Latino/a and Asian students. In the follow-up survey administrations, the same population of students was sampled: those students who were in 10th grade in 2002 and a "freshening" of 240 students who were in 12th grade in 2004. Any students who did not respond or were ineligible for the follow-ups were not included in the third follow-up, leaving a final sample in 2012 of 16,180 respondents (Ingels et al., 2014). In order to gain a more nuanced picture of the postsecondary context, I supplement the ELS data with institutional data from the 2006 Institutional Postsecondary Education Data System (IPEDS) survey. 74% of students attended public institutions in 2006, 22% attended private, non-profit institutions, and 4% attended private, for-profit institutions. Variables from IPEDS used in the propensity score model include institution control, urbanicity and census region, whether an institution offers graduate degrees, and whether an institution is a land grant institution.

[2] All sample sizes for the ELS data have been rounded to the nearest 10 in accordance with NCES restricted-use data policy.

4.3 DEPENDENT VARIABLES

In the following sections, I describe the dependent variables used in research questions 1 and 2; these are the dependent variables for the analysis using the ELS dataset. In order to capture the most nuance possible in the outcomes of interest, I use three dependent variables related to young adult civic engagement, all of which are measured at the 2012 survey wave, when respondents were around 26 years of age: voting behavior, community engagement, and social justice orientation. For the final analysis, all three variables are standardized to allow for comparison across outcomes. I discuss treatments and conditioning model covariates in the following sections, as each treatment has a unique set of covariates included in the conditioning model.

4.3.1 Voting Behavior

The first dependent variable, voting behavior (F3VOTEBEH), summarizes respondents' recent voting behavior in local, state, and national elections (mean 2.01, s.d., .84)[3]. The variable is coded "voted in both the 2008 presidential election and a 2009/2011 non-presidential election" (3), "voted in either the 2008 presidential election or a 2009/2011 non-presidential election" (2), or "voted in neither election" (1). This helps to understand the nuance in level of commitment to civic engagement, as voting in a national election once every four years requires less time and effort than also participating in local and state elections. There is also often less publicity and media saturation surrounding local elections, especially those that do not take place in a

[3] Means presented for dependent variables are pre-standardization.

presidential election year, meaning that individuals who vote are likely to be more politically informed or have more motivation to learn about these elections (Green et al., 2003). As Verba et al. 1995 argue, voting is a low-commitment political activity in that it requires an individual to spend minimal time to complete the action; thus, accounting for more nuanced differences in voting behavior is important.

4.3.2 Community Engagement

Because voting is only one measure of civic and civic engagement, and given the lower level of commitment or risk it requires, I also include a dependent variable for community engagement (F3CommEngaged), which is a sum of two variables measuring respondents' participation in community service (F3D40) and frequency of philanthropic giving or donations (F3D43), with values ranging from 1-6 (mean 2.83, s.d. 1.41). This will allow me to measure more active engagement in the community and a wider variety of behaviors.

4.3.3 Social Justice Orientation

In addition to outcome variables measuring behaviors, I include a third outcome variable, F3Attitudes, that gauges respondents' attitudes and values related to social justice outcomes; this variable measures respondents' concern for helping others in the community and interest in correcting social inequality, which is reflective of other studies in higher education that are concerned with civic attitudes (e.g. Vogelgesang & Astin, 2000). In the third follow-up, respondents are asked to indicate whether a number of "values" are: not important (1), somewhat important (2), or very important (3). Of those, two variables represent political/civic engagement

attitudes: helping other people in the community (F3D53D), and working to correct inequality (F3D53G). I take a sum of these two variables, values ranging from 2-6 (mean 4.49, s.d. 1.11). Measuring attitudes in addition to behaviors provides are stronger assessment of overall political orientation. Behaviors may be due to a sense of obligation or social pressure (Gerber et al., 2008), while attitudes help to capture intent. These three variables in combination provide a more detailed picture of a respondents' engagement with the electoral process and with the community in general.

4.4 EFFECTS OF EXTRACURRICULAR PARTICIPATION

In this section, I discuss the effects of extracurricular participation in college on young adult civic engagement. I begin by presenting descriptive statistics that show the differences between those who participated in extracurricular activities in college and those that did not, before matching. I then describe the conditioning model to estimate the propensity score and the findings from the propensity score matching.

4.4.1 Conditioning model

The first step in an analysis using propensity score matching is to develop a "conditioning model," a binary probit regression model designed to estimate the probability of a particular respondent's selection into the treatment. For research question 1, the treatment of interest is participation in extracurricular activities at the postsecondary level. This treatment is represented by the binary variable F2extra_dummy (1 if participated in any extracurricular activity, 0

otherwise), measured at the second follow-up in 2006, when respondents who attended college immediately after high school would have been in their third year of postsecondary education. Like traditional regression models, variables should be chosen based on both theory and model fit. As such, I include variables in the conditioning model that are related to participation in college extracurricular activities: parental social capital, high school activity participation, high school institutional characteristics, and postsecondary institutional characteristics.

These variables are consistent with research on college involvement that shows the importance of pre-college inputs in predicting college experiences (e.g. Astin, 1993; Hurtado et al., 2002; Stuber, 2012) and political socialization. I also use variables related more directly to family political socialization in the conditioning model, such as those used for the construction of the family political socialization score quartile, described previously in section 4.4, following Fan and Nowell's (2011) recommendation that covariates that may also be related to the outcome variable should be considered for inclusion in the conditioning model. For a more detailed description of the variables included in the conditioning model and accompanying descriptive statistics, please see Appendix A. The probit regression equation is as follows:

Equation 3. Conditioning model to estimate the extracurricular participation propensity score

$$probability\ of\ inclusion\ in\ treatment = \alpha + \beta_1[family\ social\ capital] + \beta_2[SES] + \beta_3[demographics] + \beta_4[youth\ time\ use] + \beta_5[high\ school\ context] + \beta_6[postsecondary\ institutional\ context] + \varepsilon$$

I ran the probit regression model with all variables before using it to estimate the propensity score in order to test for model fit and significance of variables. Although not all variables included in the model were statistically significant, those retained are included based

on the literature on college involvement. Table 1 below presents the results of the probit model to estimate the propensity score.

Table 1. Conditioning model to estimate the extracurricular propensity score

Variable	Coefficient		SE
Discuss Current Events With Parents	0.098	**	.03
Family SES Quartile	0.089	***	.02
Homework hours*	0.039	**	.01
Belong to parent-teacher organization	0.079		.05
Parents limit TV and video games	0.05		.02
Discuss school courses with parents	0.091	**	.03
Race/Ethnicity			
Latino	-0.147	*	.07
African American	-0.049		.08
AAPI	0.086		.07
Other	0.101		.10
Importance of helping others in community	0.177	***	.04
Degree Aspirations	0.153	***	.02
Participation in extracurriculars in high school	0.472	***	.06
High School Census Region			.14
South	-0.118		.11
Midwest	-0.068		.14
West	-0.242		.14
High School GPA	0.256	***	.04
Postsecondary institution urbanicity			
Urban	0.128		.97
Suburban	0.191	*	.08
PS Census region			
South	0.126		.11
Midwest	0.07		.14
West	0.153		.14
Whether institution offers graduate programs	0.438	***	.05

Table 1. Conditioning model to estimate the propensity score (continued)

Variable	Coefficient		SE
Whether institution is landgrant	0.277	***	.07
Postsecondary institution control			
Private non-profit	0.504	***	.06
Private for-profit	-0.109		.11
Constant	-2.989	***	.17
Pseudo R-square	0.191		
N	5190		

Note. ***p<.001, **p<.01, *p<.05

I then used Stata's *pscore* command to estimate a propensity score using the established conditioning model. The first attempt at estimating the propensity score produced 8 strata within which to test for covariate balance. After finding that the means in treatment and control groups for the variable for "private" (a dummy variable for whether the high school was private) were not balanced, I removed the high school control dummy variables (private and Catholic) from the model, given the additional low significance value for the "Catholic" dummy variable. This adjustment produced 7 strata, within which the balancing criteria were met, indicating that there were no significant differences (p<.001) between the treated and untreated groups in each stratum. For details on the tests of the balancing property, see appendix F. The region of common support, which represents the overlap in distributions of propensity scores for the treated and untreated groups, for this propensity score model is .04 to .98. In total, 5210 observations, about 62% of the sample, are included in the region of common support.

4.4.2 Descriptive statistics: differences between treated and untreated groups

Before presenting the results of the propensity score matching, I compared the characteristics of the treated and untreated groups. That is, those who participated in extracurricular activities in college, and those who did not. Table 2 below presents the means for the treated and untreated groups on all of the variables included in the conditioning model. Those who participated in extracurricular activities in college have higher means on family social capital, high school achievement and degree aspirations, and are more likely to attend private institutions and institutions that offer graduate degrees. These differences show that the treated and untreated groups appear to vary systematically, demonstrating the importance of using propensity score matching.

Table 2. Pre-matching differences between treated and untreated groups

	Treated (extracurriculars)		Untreated (no extracurriculars)		
	n=5310		n=3080		
Variable	Mean	SD	Mean	SD	
Discuss current events with parents	2.16	0.65	1.94	0.68	***
SES quartile	3.1	1.02	2.61	1.1	***
Homework hours	4.92	1.79	4.14	1.71	***
Belong to parent-teacher organization	0.38	0.48	0.25	0.43	***
Parents limit TV and video games	2.38	1.04	2.14	1.05	***
Discuss school courses with parents	2.29	0.63	2.08	0.68	***
Race/Ethnicity					
Latino	0.08	0.28	0.15	0.36	***
Black	0.1	0.3	0.12	0.32	**
AAPI	0.13	0.34	0.12	0.32	*
Other	0.04	0.21	0.05	0.21	
Importance of helping others in community	2.45	0.56	2.29	0.6	***
Degree Aspirations	2.8	0.88	2.29	0.92	***
Participation in extracurriculars in high school	0.94	0.25	0.77	0.42	***
High School Census Region					
South	0.35	0.48	0.35	0.48	
Midwest	0.26	0.44	0.25	0.43	
West	0.19	0.39	0.22	0.41	***
High School GPA	2.68	0.58	2.34	0.65	***

Table 2. Pre-matching differences between treated and untreated groups (continued)

	Treated (extracurriculars)		Untreated (no extracurriculars)		
	n=5310		n=3080		
Variable	Mean	SD	Mean	SD	
Postsecondary institution urbanicity					
Urban	0.57	0.49	0.52	0.5	***
Suburban	0.36	0.48	0.36	0.48	
PS Census Region					
South	0.36	0.48	0.35	0.48	
Midwest	0.18	0.38	0.22	0.41	
West	0.25	0.44	0.24	0.43	***
Whether institution offers graduate programs	0.75	0.43	0.39	0.49	***
Whether institution is landgrant	0.16	0.37	0.06	0.25	***
PS Institutional Control					***
Private non-profit	0.3	0.46	0.1	0.3	***
Private for-profit	0.02	0.14	0.06	0.24	***

Note. Two sample t-tests ***p<.001, **p<.01, *p<.05

4.4.3 Results of the Propensity Score Model for extracurricular participation

In this section, I discuss the effects of extracurricular participation on each dependent variable, presenting the average treatment effect on the treated (ATT) for each dependent variable and average treatment effects within strata. For all of the propensity score matching analyses in this

study, I use stratification matching estimators given their ability to partially mediate bias from unobservables not included in the conditioning model (Morgan, 2001; Becker & Ichino, 2002).

Table 3. Average treatment effects on the treated for college extracurricular participation using stratification matching

Dependent variable	Treatment	Control	ATT	SE
Voting	3450	1760	.160***	.04
Community Engagement	3450	1760	.195***	.04
Volunteer work	3450	1760	.276***	.02
Philanthropy	3450	1760	.110*	.04
Social justice orientation	3450	1760	.163*	.07
Helping others	3450	1760	.104*	.04
Correcting inequality	3450	1760	.056	.04

P ***p<.001, **p<.01, *p<.05

Table 4. Average treatment effects by stratum for college extracurricular participation

Stratum	Voting	Community Engagement	Social Justice Orientation
1	0.54	0.29	0.06
2	0.03	0.30	0.13
3	0.10	0.27	-0.18
4	-0.06	0.20	-0.12
5	0.11	0.33	0.28
6	0.14	0.41	0.29
7	0.44	0.65	0.27

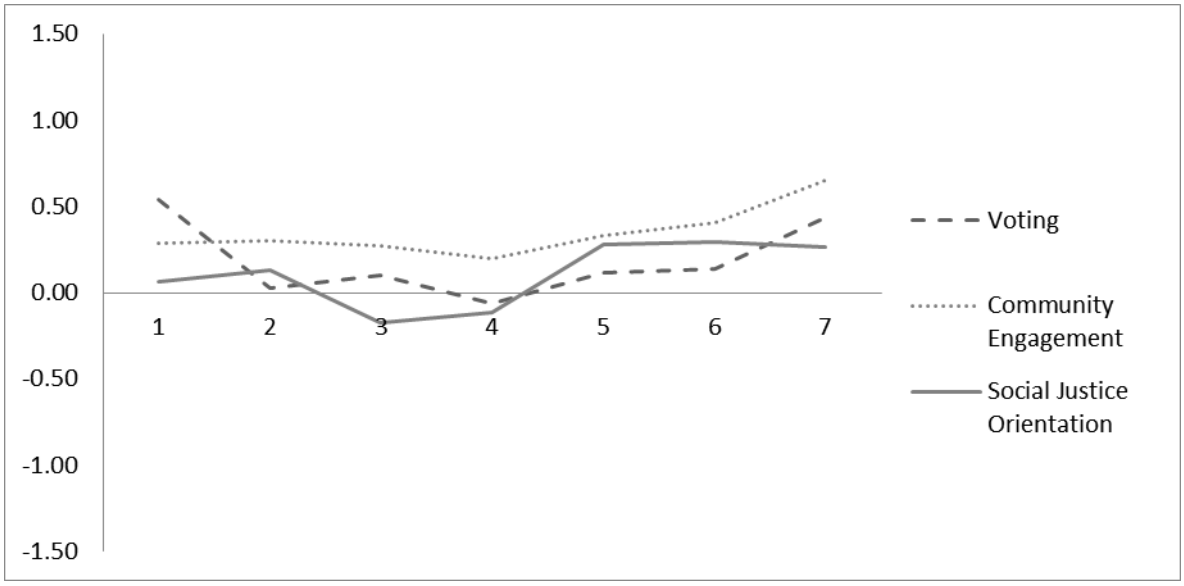

Figure 2. Treatment effects by stratum for college extracurricular participation

4.4.3.1 Voting

For the voting dependent variable, the results in Table 4 show that the largest mean difference in outcomes between the treatment and control (treatment effect) is in the first block, those individuals with the lowest propensity scores. This suggests that those who are least likely to participate in extracurricular activities (those with less family social capital and political socialization) are those that stand to benefit the most from these activities. For all strata, as presented in Table 3, the overall average treatment effect on the treated is positive and statistically significant ($p<.001$), indicating that, overall, participation in extracurricular activities in college leads to higher levels of voting behavior in young adults.

4.4.3.2 Community engagement

In order to test the effects of extracurricular participation in college on young adult community engagement, I estimate ATTs for extracurricular participation on the community engagement scale variable, then I estimate the ATTs for the two variables used to construct the scale, to

understand whether there are differences in the effects of these two variables. The results in Table 4, presented only for the scale variable, show that students in the highest block of the propensity score (those most likely to participate in extracurricular activities) are those that see the largest mean difference in community engagement outcomes. As shown in Table 3, the ATT for the scale variable is positive and significant ($p<.001$); however, the higher significance level for volunteer work suggests that as compared to philanthropy, volunteer work is more affected by extracurricular participation.

4.4.3.3 Social justice orientation

The ATT for the social justice orientation scale is positive and significant ($p<.05$). When the variables are divided, the correcting inequality measure is the only one that remains significant (see Table 3). Overall, these findings show that the effect of participation in extracurricular activities is strongest for the more active forms of civic engagement, voting and volunteer work, while the effect on attitudes is less consistent. The results in Table 4 show inconsistent mean differences in outcomes among the different blocks, which is consistent with ATT results that do not suggest a very strong relationship between extracurricular participation and social justice attitudes.

4.5 EFFECTS OF ATTENDANCE AT A PRIVATE POSTSECONDARY INSTITUTION

A substantial amount of research exists that demonstrates the connection between participation in different educational activities and civic outcomes. However, not all youth have equal access to

these activities (McFarland & Thomas, 2006), especially at the college level. The probit model to estimate the extracurricular participation propensity score (Table 1) showed significant associations between institutional characteristics and extracurricular participation (which does influence political outcomes; see Table 3), suggesting at least an indirect relationship between institutional characteristics and political outcomes. As such, I proceeded with an exploratory descriptive and regression analysis of the effects of postsecondary institutional characteristics (controlling for family and high school experience), and then conduct a propensity score analysis based on regression results. In the following section, I discuss ordered probit regression results and outline the steps taken to estimate the propensity score model and average treatment effects on the treated (ATT) for the effect of attendance at private postsecondary institutions on three civic engagement dependent variables (voting, community engagement, and provide supporting results.

4.5.1 Exploratory descriptive analysis

In order to parse out the amount of variance explained by the student and institution levels, I calculated intraclass correlation coefficients (ICC). The ICCs show that institutions explain 22% of the variance in extracurricular participation, while they explain much less of the variance in the dependent variables (4% of voting, 6% of community engagement, and 4% of social justice orientation). Similarly, means for extracurricular participation, presented in Table 5 and the three dependent variables show a larger difference in extracurricular participation between private and public institutions than for the three dependent variables. These findings are consistent with ordered probit regression analyses, which I discuss in the following section.

Table 5. Means by institution type for dependent variables and extracurricular participation

	Private nonprofit institution			Public or for-profit institution			
Variable	Mean	SD	N	Mean	SD	N	
Extracurricular participation	0.841	0.365	1870	0.573	0.495	6480	***
Voting	2.248	0.771	1640	2.131	0.817	5360	***
Community Engagement	3.191	1.373	1640	2.934	1.381	5350	***
Volunteering	0.592	0.492	1640	0.463	0.497	5370	***
Philanthropy	2.599	1.171	1640	2.471	1.184	5350	***
Social Justice Orientation	4.502	1.082	1630	4.471	1.111	5310	
Helping others	2.418	0.593	1630	2.34	0.605	5320	
Correcting inequality	2.085	0.676	1630	2.08	0.692	5320	

Note. Two sample t-tests ***p<.001; **p<.01; *p<.05

4.5.2 Ordered probit regression analysis

In order to begin to understand the effects of the institutional context on the three dependent variables, I developed an ordered probit regression model for each dependent variable. The three models included the same explanatory variables. Key explanatory variables were related to postsecondary institutional characteristics, including region, control, urbanicity, land grant status, and whether the institution offers graduate degrees. Control variables included college experience (extracurricular participation and social science major dummy), family socialization, and high school context and experience. The ordered probit regression equation is as follows:

Equation 4. Ordered probit regression model to explore relationship between institutional factors and dependent variables

$$probability\ of\ inclusion\ in\ treatment = \alpha + \beta_1[family\ social\ capital] + \beta_2[SES] + \beta_3[demographics] + \beta_4[youth\ time\ use] + \beta_5[high\ school\ context] + \beta_6[postsecondary\ institutional\ context] + \beta_6[postsecondary\ experience] + \varepsilon$$

The regression results are presented in Table 6 below. For community engagement, the college variables that are significant are extracurricular participation ($p<.001$), location in the south census region ($p<.001$), and attendance at a private institution ($p<.01$). For the voting dependent variable, the only significant college variables are: extracurricular participation ($p<.05$) and location in the west ($p<.05$) and Midwest ($p<.05$) census regions. For attitudes, the only significant college variable is social science major ($p<.001$). These results suggest that experiences in college, rather than institutional characteristics, matter most in terms of affecting civic engagement outcomes. This is consistent with the findings in research question 1 above. The institutional characteristic that was significant in the ordered probit models and that reflects the most inequality in terms of access is attendance at a private institution, given admission standards and cost of attendance. However, because bias associated with selection into a private college or university is a concern, I then proceed with propensity score analysis for the effect of private institution attendance.

Table 6. Ordered probit regression model to explore relationships between institutional context and dependent variables

	Voting			Community Engagement			Attitudes		
Variable	Coef		SE	Coef		SE	Coef		SE
Parents limit TV/video games	-0.014		0.02	0.05	**	0.018	0.01		0.019
Discuss courses with parents	0.06		0.032	0.03		0.03	0.033		0.03
Discuss current events with parents	0.189	***	0.033	0.098	**	0.03	0.081	**	0.031
Parent contact with school	0.038		0.023	0.018		0.021	0.051	*	0.022
Belong to parent-teacher organization	0.172	***	0.045	0.047		0.041	-0.006		0.041
Family receives regular magazine	0.155	**	0.058	0.055		0.053	-0.006		0.054
family has computer	0.311	*	0.14	0.046		0.128	-0.008		0.132
Family has internet	-0.205	*	0.1	0.019		0.089	-0.045		0.093
Family SES quartile	0.05	*	0.022	-0.016		0.02	-0.014		0.021
Race/Ethnicity									
African American	0.261	**	0.08	0.123		0.07	0.387	***	0.074
Latino/a	-0.16	*	0.075	-0.063		0.069	0.032		0.07
AAPI	-0.368	***	0.073	0.025		0.066	0.165	*	0.068
Other	-0.013		0.105	-0.05		0.095	0.099		0.097
Female	0.104	*	0.042	0.185	***	0.038	0.213	***	0.039
High school GPA	-0.035		0.04	0.134	***	0.037	-0.115	**	0.037
2004: Importance of helping others in community	-0.014		0.038	0.291	***	0.035	0.46	***	0.036
2004: Importance of being active and informed citizen	0.199	***	0.037	0.045		0.034	0.258	***	0.035
College extracurricular dummy	0.12	*	0.048	0.201	***	0.044	0.047		0.045
Social science major	0.073		0.057	-0.031		0.051	0.231	***	0.053
PS Census region									
South	0.024		0.058	0.175	**	0.053	0.088		0.054
Midwest	0.124	*	0.06	0.115	*	0.054	-0.013		0.055
West	0.205	**	0.071	0.131	*	0.065	0.09		0.066
PS Control									
Private nonprofit	-0.027		0.051	0.134	**	0.046	0.031		0.047
Private for profit	-0.033		0.13	0.045		0.12	0.087		0.121
PS Urbanicity									

Table 6. Ordered probit regression model to explore relationships between institutional context and dependent variables (continued)

	Voting		Community Engagement		Attitudes	
Urban	0.013	0.08	-0.096	0.072	-0.088	0.074
Suburban	0.001	0.081	-0.034	0.073	0.015	0.075
Institution is land grant	-0.043	0.062	0.061	0.056	0.067	0.057
Institution offers graduate degrees	0.007	0.053	0.014	0.048	-0.017	0.049
Pseudo R2	0.04		0.03			0.059
N	3370		3370			3340

4.5.3 Conditioning model

The conditioning model to estimate the propensity score for the effects of attendance at a private institution uses a binary treatment variable taken from IPEDS 2006, attendance at a private institution (1 if attended a private postsecondary institution, 0 otherwise). Considering variables based on both theory and model fit, I include variables in the conditioning model is based on family social capital, high school achievement/course taking, high school institutional characteristics, student attitudes about college choice and education. The model reflects theories of college choice based in sociology and economics. In sociology, the dominant theory of college choice is that SES and student background factors influence the educational trajectory at all points of the P-20 pipeline, thus affecting college choice (e.g., Brand & Xie, 2010). To reflect this theory, I include family social capital and SES measures. On the other hand, economists theorize that students act rationally, selecting colleges based on expected returns (e.g., Nurnberg, Schapiro, & Zimmerman, 2012). As such, I also include attitude variables related to returns on education: the importance of getting a good education, the importance of being successful in one's profession, how much education a respondent thinks would be necessary for desired post-

college employment, and reasons for choosing the postsecondary institution at which a respondent studied (for cost, program, or reputation). The probit regression model is as follows:

Equation 5. Conditioning model for predicting the private institution propensity score

$$probability\ of\ inclusion\ in\ treatment = \alpha + \beta_1[family\ social\ capital] + \beta_2[SES] + \beta_3[demographics] + \beta_4[youth\ time\ use] + \beta_5[high\ school\ context] + \beta_6[sociological\ predictors] + \beta_6[economic\ predictors] + \varepsilon$$

Table 7 below presents the results of the conditioning model for attendance at a private institution. Appendix B presents further details about these variables and descriptive statistics.

Table 7. Conditioning model to estimate the private institution propensity score

Variable	Coefficient		SE
SES quartile	0.003		0.044
Homework hours	0.033	*	0.016
Belong to parent-teacher organization	0.067		0.060
Parents limit TV and video games	0.092	**	0.030
Parental education: 2 year degree	-0.027		0.108
Parental education: 4 year degree	0.027		0.091
Parental education: Graduate degree	0.256	*	0.102
More than 50 books in home	0.333	**	0.108
Discussion of school with parents index	0.085		0.050
Race/ethnicity			
Latino/a	0.062		0.111
African American	-0.028		0.107
Asian and Pacific Islander	-0.052		0.102
Other	0.120		0.132
High school extracurricular participation	0.382	**	0.128
High school GPA	0.085		0.057
Highest high school math course taken	0.058		0.047
High school census region			
South	-0.671	***	0.076
Midwest	-0.371	***	0.074
West	-0.460	***	0.095
High school academic climate	0.574	**	0.186
Degree aspirations	0.114	**	0.037
Importance of getting a good education	0.065		0.127
Importance of being successful in line of work	-0.287	**	0.108
How much education respondent thinks necessary for desired work			
2 year degree	0.059		0.229

Table 7. Conditioning model to estimate the private institution propensity score (continued)

Variable	Coefficient		SE
4 year degree	0.090		0.201
Master's degree	0.033		0.205
Doctorate/Advanced Prof.	0.085		0.209
Highest PS institutional selectivity (applied)	-0.024		0.073
Highest PS institutional selectivity (accepted)	0.209	**	0.070
Applied for financial aid	0.394	***	0.075
Chose PS institution for program	0.082		0.061
Chose PS institution for reputation	0.320	***	0.062
Chose PS institution for cost	-0.590	***	0.055
Constant	-2.556	***	0.542
Pseudo R-square	0.190		
N	5190		

Note. ***p<.001, **p<.01, *p<.05

Consistent with the extracurricular analysis, I use stratification matching in order to further mediate bias from unobservables not included in the conditioning model (Morgan, 2001; Becker & Ichino, 2002). I use Stata's pscore program, which begins with five strata, and will split strata if there is any imbalance, thus optimizing the number of blocks. The final number of blocks is 8, and balancing property was satisfied, meaning that there were no significant differences ($p<.001$) between the treated and untreated groups in each stratum. For details on the tests of the balancing property, see appendix F. The region of common support for this propensity score model is .01 to .88. In total, 3080 observations, about 36% of the sample, are included in the region of common support.

4.6 RESULTS OF THE PROPENSITY SCORE MODEL FOR ATTENDANCE AT A PRIVATE INSTITUTION

The following section presents the results of the propensity score model for attendance at a private institution on the three outcome variables: voting, community engagement, and social justice orientation. After presenting descriptive statistics for the treated and untreated groups, I present the average treatment effects on the treated (ATT) to show effects of private institution attendance on the sample overall. I then discuss the treatment effects within strata, in order to understand potential differences between individuals with higher and lower likelihoods of attending private postsecondary institutions (i.e. higher and lower propensity scores for private institution attendance).

4.6.1 Descriptive statistics

Before running the propensity score analysis, I compare the sample of students who attended a private institution to the sample of students who did not attend a private institution, to highlight differences between these populations on the covariates included in the conditioning model. As Table 8 below shows, students who attend private institutions have higher means on family social capital, academic achievement, attitudes about education/college choice, highlighting both important differences between the groups and the need for propensity score matching to account for systematic differences between the treated and untreated groups.

Table 8. Pre-matching differences between treated and untreated groups

	Private non-profit institution n=1880		Public or for-profit institution n=6500		
Variable	Mean	SD	Mean	SD	
SES quartile	3.29	0.94	2.82	1.09	***
Homework hours	5.16	1.87	4.49	1.75	***
Belong to parent-teacher organization	0.42	0.49	0.30	0.46	***
Parents limit TV and video games	1.75	0.97	1.52	0.86	***
Parental education: 2 year degree	0.07	0.25	0.10	0.30	***
Parental education: 4 year degree	0.28	0.45	0.28	0.45	
Parental education: Graduate degree	0.42	0.49	0.22	0.41	***
More than 50 books in home	0.94	0.24	0.86	0.35	***
Discussion of school with parents index	0.12	0.62	-0.04	0.67	***
Race/ethnicity					
latino	0.07	0.25	0.12	0.33	***
black	0.08	0.27	0.11	0.32	***
aapi	0.11	0.31	0.13	0.34	*
other	0.05	0.22	0.04	0.20	
High school extracurricular participation	0.95	0.22	0.85	0.35	***
High school GPA	2.76	0.53	2.50	0.64	***
Highest high school math course taken	5.75	0.60	5.40	0.90	***
High school census region					
South	0.26	0.44	0.37	0.48	***
Midwest	0.27	0.44	0.25	0.43	***
West	0.15	0.36	0.21	0.41	***
High school academic climate	0.07	0.15	0.02	0.16	***
Degree aspirations	2.92	0.86	2.53	0.93	***

Table 8. Pre-matching differences between treated and untreated groups (continued)

	Private non-profit institution n=1880		Public or for-profit institution n=6500		
Variable	Mean	SD	Mean	SD	
Importance of getting a good education	2.94	0.25	2.91	0.29	**
Importance of being successful in line of work	2.92	0.28	2.92	0.28	
How much education respondent thinks necessary for desired work					
2 year degree	0.03	0.17	0.11	0.31	***
4 year degree	0.35	0.48	0.39	0.49	*
Master's degree	0.31	0.46	0.26	0.44	***
Doctorate/Advanced Prof.	0.30	0.46	0.21	0.41	***
Highest PS institutional selectivity (applied)	3.63	0.70	2.92	1.15	***
Highest PS institutional selectivity (accepted)	3.53	0.78	2.70	1.19	***
Applied for financial aid	0.82	0.39	0.75	0.44	***
Chose PS institution for program	0.68	0.47	0.53	0.50	***
Chose PS institution for reputation	0.73	0.44	0.46	0.50	***
Chose PS institution for cost	0.33	0.47	0.59	0.49	***

Note. Two sample t-tests ***p<.001, **p<.01, *p<.05

4.6.2 Treatment effects for all three outcome variables

As shown in Table 9, the only significant ATT for attendance at a private postsecondary institution was on community engagement (.152, p<.05), and in particular for volunteer work (.149, p<.001). The effects for voting and social justice orientation were not significant. This suggests that the institutional context in which a student is situated is less important than the experiences students have in college. Treatment effects by strata do not show a consistent pattern

(see Table 10 and Figure 3), which is consistent with the overall nonsignificant effects of private institution attendance. These findings, coupled with the descriptive statistics and the ICCs, suggest that the impact of attending a private institution may be indirect, through the effect attending a private institution has on participation in extracurricular activities (see Section 4.6.1 for ICCs and Table 2 for the conditioning model for extracurricular participation). The fact that attending a private institution only has an impact on a more active outcome variable is consistent with the findings for participation in extracurricular activities.

Table 9. Average treatment effects on the treated for private institution attendance using stratification matching

Dependent variable	Treatment	Control	ATT	SE
Voting	810	2270	.035	.05
Community Engagement	810	2270	.152*	.07
Volunteer work	810	2270	.149**	.05
Philanthropy	810	2270	.005	.05
Social justice orientation	810	2270	.007	.08
Helping others	810	2270	.072	.05
Correcting inequality	810	2270	-.063	.05

Note. ***p<.001, **p<.01, *p<.05

Table 10. Treatment effects by stratum for private institution attendance

Stratum	Voting	Community Engagement	Social Justice Orientation
1	-0.35	-0.22	-0.59
2	0.03	0.57	-0.17
3	-0.02	0.03	0.11
4	0.01	0.31	0.01
5	0.11	-0.11	0.16
6	0.04	0.35	0.03
7	0.07	-0.05	-0.20
8	-0.17	0.62	0.75

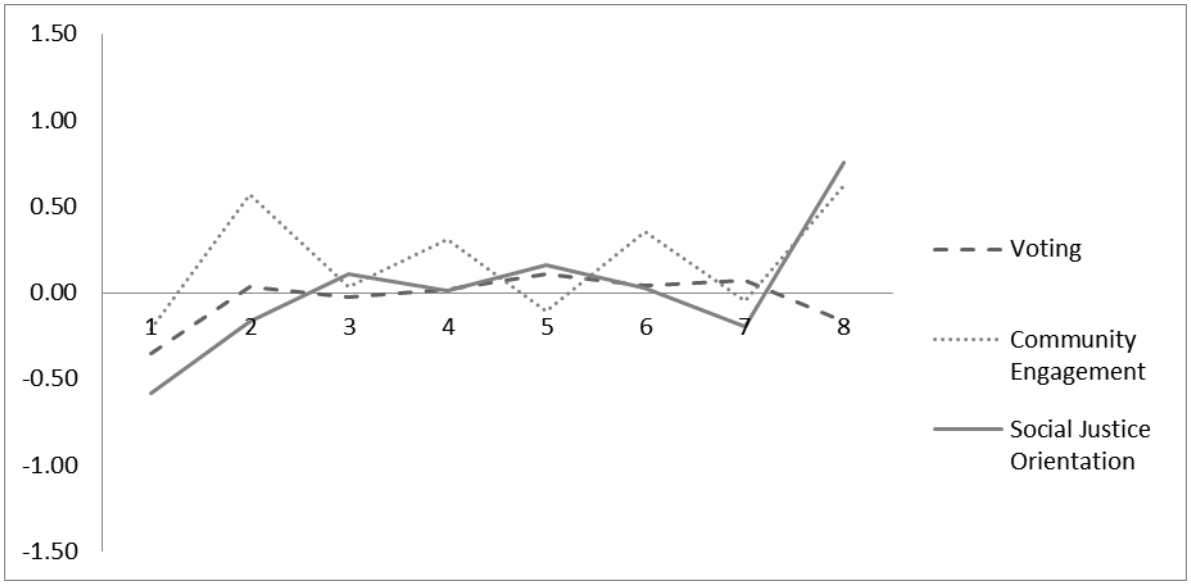

Figure 3. Treatment effects by stratum for private institution attendance

4.7 ROBUSTNESS AND SENSITIVITY TESTS

In order to test for conditioning model sensitivity, I also used two other regression models to predict the propensity score for extracurricular participation and attendance at a private institution: one which included additional parental social capital and high school experience variables, and a forward stepwise regression including only variables significant at the $p<.05$ level or greater. Based on tests for model fit (Hosmer-Lemeshow and area under the ROC curve), addition or subtraction of variables in the model made little difference in model fit or adjusted r-squared. Further, the propensity scores estimated from these models produced similar results in terms of balance, common support and matching estimators. As such, the final conditioning model includes non-significant yet theoretically important variables.

I tested several different matching approaches to test for robustness of the propensity score models: nearest neighbor, direct nearest neighbor with Mahalanobis metric matching, and inverse probability weighting. The direction, magnitude, and significance of the treatment effects was similar across approaches. I also tested nearest neighbor matching with the ELS sample weights. As with the previous test, the results were consistent but only available for nearest neighbor matching, so I ultimately used stratification matching without the sample weights. The ATTs for these various matching estimators are presented in Appendix D.

4.8 SUMMARY

This chapter's key findings are that extracurricular participation in college leads to increases in young adult political outcomes, including voting behavior, community engagement, and social

justice orientation. For voting behavior and community engagement in particular, participating in extracurricular activities in college leads to greater and more statistically significant increases in the outcomes, suggesting that extracurricular participation has a stronger impact on more "active" or behavioral outcomes, rather than on behaviors. Attendance at a private institution had a small effect on community engagement, but, overall, the experiences students had within college mattered more than the institution they attended (the "between college" effect). The effect of private institution attendance may be operating indirectly, through its positive association with extracurricular participation. These results are for civic engagement outcomes as young adults, approximately 6 years out of college (for those who complete college on a traditional path). The analysis in the following chapter will test whether similar effects can persist throughout the life course, and whether generational differences exist in political socialization.

5.0 ANALYSIS USING YOUTH-PARENT SOCIALIZATION PANEL STUDY

5.1 INTRODUCTION

The analysis in Chapter 4 showed that the college experience, rather than institutional characteristics, has an impact on young adult civic engagement outcomes. Less research or data, however, exist that follow students longitudinally throughout the life course to test whether these effects persist past young adulthood. In order to test for lasting effects of the college experience, to confirm the results in the previous chapter, and to identify potential generational differences in how students are socialized politically, I conduct a similar propensity score analysis using data from the 1965 Youth-Parent Socialization Panel Study (YPSPS). The third research question and its sub-questions are as follows:

- RQ3: Does the effect of the college experience on civic engagement persist past young adulthood?
    - RQ3a: Does having one's beliefs challenged in college impact civic engagement later in life?
    - RQ3b: Does social science course taking in college impact civic engagement later in life?
    - RQ3c: Does receiving a bachelor's degree impact civic engagement later in life?

In this chapter, I present results for these research questions, discussing the conditioning model, average treatment effects on the treated, and average treatment effects by stratum for each of three treatments: political activity, civic tolerance, and political knowledge.

5.2 DATA

For this analysis, I use data from the 1965 Youth-Parent Political Socialization Panel Study (ICPSR 04037) created by Jennings and Niemi to support their influential work on political socialization. The study surveyed a nationally representative sample of high school students and their parents, beginning in 1965. Respondents were selected from an original national probability sample of 1,669 high school seniors at 97 different high schools, both public and private. These respondents were surveyed at three further time points: 1973, 1982, and 1997, when respondents were approximately ages 26, 35, and 50, respectively. The final sample of respondents that completed all four waves was 935, 56% of the original respondents. The sample was approximately 50% female, 91% white, 7% African American, and 2% other races.[4]

This longitudinal survey contains a wealth of political outcome variables, allowing for a nuanced understanding of civic engagement outcomes. Further, many of the variables are repeated measures that are surveyed at all four waves, allowing for an analysis of whether effects of the college experience persist throughout the life course. This dataset has been utilized for a number of studies about parental socialization (Jennings & Niemi, 1968), generational effects on political outcomes (Jennings et al., 2009; Jennings & Stoker, 2004) the role of religion in

[4] An important limitation of these demographic variables is that they are based on interviewer observation, rather than respondent self-identification.

political socialization (Ammann, 2014), and student protest (Jennings, 2002). The role of educational activities on young adult political outcomes (Beck & Jennings, 1982) and the impact of college education on civic engagement (Kam & Palmer, 2008; Mayer, 2011) have also been examined using this survey. However, the continued effect of educational attainment and involvement throughout the life course remains understudied. Although this survey represents a very different generational cohort than the ELS:2002 dataset, the availability of data far beyond young adulthood allows for an analysis of longer term effects of educational activities on political outcomes. Thus, it serves as an important comparative supplement to the ELS:2002 analysis in terms of potential long-term effects or possible presence or absence of generational differences.

5.3 DEPENDENT VARIABLES

In the following sections, I describe the dependent variables used in research question 3, for the analysis using the YPSPS dataset. Consistent with the ELS analysis, I use three dependent variables to measure civic engagement: political activity, civic tolerance, and political knowledge. In order to understand the degree to which effects of the college experience last throughout the life course, I use outcomes measured in the 1982 and 1997 survey waves. For the final analysis, all three variables are standardized to allow for comparison across outcomes. I discuss treatments and conditioning model covariates in the following sections, as each treatment has a unique set of covariates included in the conditioning model. Insomuch as possible, these variables align with the ELS outcome variables. In particular, political activity and civic tolerance are similar to the behavior and attitude outcome variables in the ELS:2002 analysis.

Political knowledge, which was not available in the ELS:2002 dataset, is an added measure, commonly found in studies of civic engagement (e.g., Niemi & Junn, 1998). For a crosswalk between ELS:2002 variables and YPSPS dependent variables, please see Appendix F.

5.3.1 Political activity

The political activity index (activityindex97, activityindex82) is a measure of respondents' level of engagement in political and community activities, constructed for the YPSPS dataset. The variable is constructed as a sum of a respondent's "yes" responses to the following binary variables:

Political activity index (Since [previous survey wave], have you; sum of yes responses)

1. Talked to people to tell them why to vote one way or other
2. Attended political meetings, rallies, etc.
3. Done other work for a party or candidate
4. Worn a campaign button or bumper sticker
5. Given money
6. Sent a letter, email, etc.
7. Written an op-ed
8. Participated in protest, demonstration, etc
9. Worked with others to solve community issue

Values for the political activity index variable range from 0-9 (1982: mean, 2.39, s.d., 2.17; 1997: mean, 3.06, s.d., 2.42).[5]

5.3.2 Civic tolerance

The second dependent variable is the civic tolerance index (civictolerindex97, civictolerindex82), which measures respondents' attitudes toward a number of "civic tolerance" related questions. The variable is constructed for the YPSPS dataset as a sum of "agree" responses to the following binary variables, which ask respondents whether they agree or disagree with the questions posed in each variable.

Civic tolerance index (How strongly do you agree or disagree; sum of "agree" responses)

1. "If someone wanted to make a speech in this community against churches and religion, that person should be allowed to speak."
2. "If a Communist were legally elected to some public office around here, people should allow that person to take office."

The civic tolerance index ranges from 1-4. (1982: mean, 3.13, s.d., .88; 1997: mean, 3.31, s.d., .83).

[5] Like the ELS analyses, dependent variables were standardized for the final analysis, but descriptive statistics presented in this section are for the unstandardized variables.

5.3.3 Political knowledge

The final dependent variable represents a respondents' level of political knowledge (polknowindex97, polknowindex82). The variable was constructed for the YPSPS dataset as a sum of correct answers to the following questions:

1982 Political knowledge index (answer the following questions, in 1982; sum of correct responses)

1. How many years does a US senator serve?
2. Marshall Tito was a leader in which country?
3. How many members serve on the U.S. Supreme Court?
4. Who is the current governor of your state?
5. Which nation had a lot of concentration camps in WWII?
6. Was Franklin D. Roosevelt a Democrat or Republican?
7. Who succeeded John F. Kennedy as president?
8. Do you know a country that borders with North or South Vietnam?

For the 1997 political knowledge index, values range from 1-10 (mean, 6.56, s.d., 1.94), and in 1982, the values range from 1-8 (mean, 5.37, s.d., 1.76).

1997 Political knowledge index (answer the following questions, in 1997; sum of correct responses)

1. How many years does a US senator serve?
2. Marshall Tito was a leader in which country?
3. How many members in serve on the U.S. Supreme Court?
4. Which nation had a lot of concentration camps in WWII?
5. Was Franklin D. Roosevelt a Democrat or Republican?

6. Who succeeded John F. Kennedy as president?
7. Do you know a country that borders with North or South Vietnam?
8. What year did Berlin wall fall?
9. What position does Clarence Thomas hold?

5.4 EFFECTS OF HAVING ONE'S BELIEFS CHALLENGED IN COLLEGE

Research question 3a seeks to understand whether having one's beliefs challenged while in college impacts civic engagement outcomes throughout the life course. The treatment of interest in this case, then, is the variable beliefchall73, which asks respondents to self-report whether or not their beliefs were challenged as a result of their college experience. This is a binary variable coded 1 if a respondent's beliefs were challenged in college and 0 otherwise. It was measured in the 1973 wave, when respondents were approximately 26 years of age.

5.4.1 Conditioning model

The conditioning model for having one's beliefs challenged in college includes variables that were "temporally prior" (Bowman et al., 2014) to the treatment, measured in 1965. Consistent with the literature on political socialization, these covariates are based on the different agents of political socialization. In particular, variables focus on family socialization and high school experiences. I also include 1965 measures of the outcome variables and other 1965 civic engagement scales, as including pre-treatment measures of the outcomes of interest can help to mitigate selection bias (Hallberg, Steiner, & Cook, 2011). For a detailed description of the

variables included in the conditioning model, see Appendix B. The probit regression model is as follows:

Equation 6. Conditioning model to estimate the beliefs challenged propensity score

$$probability\ of\ inclusion\ in\ treatment = \alpha + \beta_1[family\ social\ capital] + \beta_2[SES] + \beta_3[demographics] + \beta_4[political\ media\ consumption] + \beta_5[high\ school\ context] + \beta_6[degree\ aspirations] + \beta_6[political\ outcome\ scales] + \varepsilon$$

I first ran a stepwise regression with all 1965 variables to determine those that were significant predictors of having one's beliefs challenged in college. Then, following the literature on political socialization and civic engagement in education, I also included variables that, although were non-significant, were theoretically important predictors of the treatment. Model robustness checks included Hosmer-Lemeshow and area under the ROC curve for both the minimal stepwise model and the full model. Addition or subtraction of variables in the model made little difference in model fit or adjusted r-squared. Further, the propensity scores estimated from these models produced similar results in terms of balance, common support and matching estimators. In order to estimate the propensity score, I used stata's *pscore* command to estimate the propensity score and divide the matched sample into 5 strata based on their propensity score. The balancing criteria were met, indicating that there were no significant differences ($p<.001$) between the treated and untreated groups in each stratum. For details on the tests of the balancing property, see appendix F. Table 11 below presents the results of the probit regression used to estimate the propensity score.

Table 11. Conditioning model to estimate beliefs challenged in college propensity score

	Coefficient		SE
Watch politics TV with family	-0.078		0.24
Discuss politics with friends	-0.076		0.07
Plans to continue school after HS	-0.509		0.55
Spending money from parents	0.275		0.17
Cosmopolitan index	-0.029		0.06
School political activities	0.038		0.05
Ideology index	0.073		0.05
Internal efficacy index	0.358	**	0.12
Opinion strength index	-0.069		0.04
Self confidence index	-0.028		0.05
Personal trust index	-0.052		0.04
Political trust index	0.001		0.07
Political knowledge index	0.075		0.07
Civic tolerance index	0.063		0.1
Courses increased interest in politics	0.028		0.13
Listen to politics on radio	0.012		0.04
Read about politics in newspaper	-0.06		0.07
Watch politics on TV	-0.157		0.1
Read about politics in magazine	0.045		0.1
Discuss politics with family	0.03		0.09
Discuss politics with an adult	0.203	*	0.08
Plan to attend 4 year college	0.222		0.18
High school vocational curriculum	0.317		0.53
High school college prep curriculum	-0.187		0.25
High school business curriculum	-0.671		0.41
Non-white	-0.756	*	0.33
Constant	-0.222		0.97
Pseudo R-square	0.127		
N	325		

Note. ***p<.001, **p<.01, *p<.05

The region of common support, representing the region where propensity scores for treated and untreated groups overlap, is .14-.90. This represents 492 observations, or 52.6% of the sample.

5.5 RESULTS OF THE PROPENSITY SCORE MODEL FOR HAVING ONE'S BELIEFS CHALLENGED IN COLLEGE

In the following section, I first show descriptive statistics that point to important differences between respondents whose beliefs were challenged in college and respondents whose beliefs were not challenged in college. I then present the effects of having one's beliefs challenged in college on each dependent variable for 1982 and 1997 outcomes, both as ATTs and as average treatment effects in each propensity score stratum.

5.5.1 Descriptive statistics

Table 13 below presents means for each of the variables in the conditioning model for both the treated and untreated groups, before matching. Significant differences in the outcome between the treated and untreated samples demonstrate important differences between those who reported having their beliefs challenged in college and those who did not. Specifically, those whose beliefs were challenged in college had higher mean scores on the cosmopolitanism, internal efficacy, understanding of party ideology, and political knowledge index variables. Respondents whose beliefs were challenged in college also more frequently read magazines to get political information, discussed politics with adults, had plans to attend a four year institution, and took either a college preparatory or business curriculum in high school. Nonwhite respondents were less likely than white respondents to have their beliefs challenged in college. These differences also demonstrate the importance of matching on the propensity score, as those in the treated and untreated groups appear to differ systematically.

Table 12. Pre-matching differences between treated and untreated groups

	Beliefs not challenged in college n=280		Beliefs challenged in college n=221		
	Mean	SD	Mean	SD	
Watch TV with family	0.889	0.315	0.867	0.34	
Discuss politics with friend	2.286	1.313	2.036	1.204	*
Continue school next year?	0.957	0.202	0.963	0.187	
Spending money from parents	0.667	0.472	0.717	0.451	
Cosmopolitan index 65	5.34	1.389	5.68	1.298	*
School political activities index	3.07	1.706	3.466	1.545	**
ideology index	2.796	1.613	3.248	1.699	**
Internal efficacy index	2.15	0.689	2.423	0.668	***
Opinion strength index	4.644	1.749	4.618	1.87	
Self confidence index	4.971	1.726	5.166	1.619	
Personal trust index	5.251	2.057	5.188	2.06	
Political trust index	4.728	1.097	4.573	1.24	
Political knowledge index	4.943	1.374	5.408	1.249	***
Civic Tolerance Index	2.368	0.883	2.407	0.793	**
Did public affairs course increase political interest	2.506	0.623	2.519	0.629	
Listen to radio with family	3.29	1.797	3.403	1.755	
Frequency of reading newspaper about politics	4.029	1.3	4.123	1.334	
Frequency of watching TV about politics	3.86	1.211	3.787	1.267	
Frequency of reading magazine about politics	2.341	0.882	2.52	0.79	*
Discuss politics with family	3.111	0.946	3.253	0.899	
Discuss politics with adults	1.918	1.016	2.114	1.01	*
pLans to attend 4 year institution	0.643	0.48	0.761	0.427	**
Attended vocational HS	0.026	0.158	0.028	0.164	
Attended college prep HS	0.681	0.466	0.806	0.396	**
Attended business HS	0.125	0.331	0.028	0.164	***
Non-white	0.104	0.305	0.041	0.198	**

Note. Two sample t-tests ***p<.001, **p<.01, *p<.05

5.5.2 Political activity index

Table 13 presents the average treatment effects on the treated for the 1982 and 1997 political activity index dependent variable for all strata. In 1982, there is a positive and significant ATT for political activity; for those whose beliefs were challenged in college, the effect of this experience increased political activity in 1982 by 45.1% ($p<.01$). In 1997, the ATT for political activity is also statistically significant ($p<.01$) and positive, but with a slightly smaller effect size. In 1997, within strata, as shown in Table 14 and Figure 4, the average treatment effects are largest in strata 2, some of those with the lowest propensity scores. This means that those who were less likely to have their beliefs challenged in college were actually those that stood to benefit the most from this experience in terms of political activity as adults. This is not a consistent trend, however, as the lower mean difference in outcome in block 1 shows.

5.5.3 Civic tolerance index

Average treatment effects on the treated for the civic tolerance index dependent variable were positive and significant in 1982, indicating that having one's beliefs challenged in college led to a 30.8% increase in civic tolerance around age 35. In 1997, however, the effect on civic tolerance was not significant, meaning that there was no significant impact of having one's beliefs challenged in college on civic tolerance in 1997. When considering average treatment effects by stratum in 1997, those with the lowest propensity scores had the highest mean difference in outcome between the treated and untreated groups. These effects, however, are small and non-significant. These findings are consistent with those from the previous analysis using ELS data,

where the attitude variables were least affected by the college experience. Details are presented below in Tables 13 and 14 and Figure 4.

5.5.4 Political knowledge index

Finally, as shown in Table 13, having ones beliefs challenged in college had a positive and significant ($p<.01$) impact on respondents' political knowledge in 1997, but not in 1982. For those respondents whose beliefs were challenged in college, having one's beliefs challenged in college increased political knowledge in 1997 by 34.1%. Average treatment effects by stratum in 1997 (Table 14 and Figure 4) show that those with the highest propensity scores had the largest mean differences in outcome between the treated and untreated groups, suggesting that those who were most likely to have their beliefs challenged were also those that would have seen the largest impact on political knowledge as a result of that experience.

Table 13. Average treatment effects on the treated for having one's beliefs challenged in college using stratification matching

Dependent variable	Treatment	Control	ATT	SE
Political activity 1982	144	348	.451**	.14
Civic tolerance 1982	144	348	.308*	.13
Political knowledge 1982	144	348	.235	.14
Political activity 1997	144	348	.389**	.13
Civic tolerance 1997	144	348	.204	.11
Political knowledge 1997	144	348	.341*	.14

Note. ***p<.001, **p<.01, *p<.05

Table 14. Treatment effects by stratum for having one's beliefs challenged in college

	Political acitivity index	Civic tolerance index	Political knowledge index
1	0.191	0.708	0.351
2	0.745	0.34	0.491
3	0.156	-0.247	-0.125
4	0.415	0.462	0.505
5	-0.207	-0.4	1.118

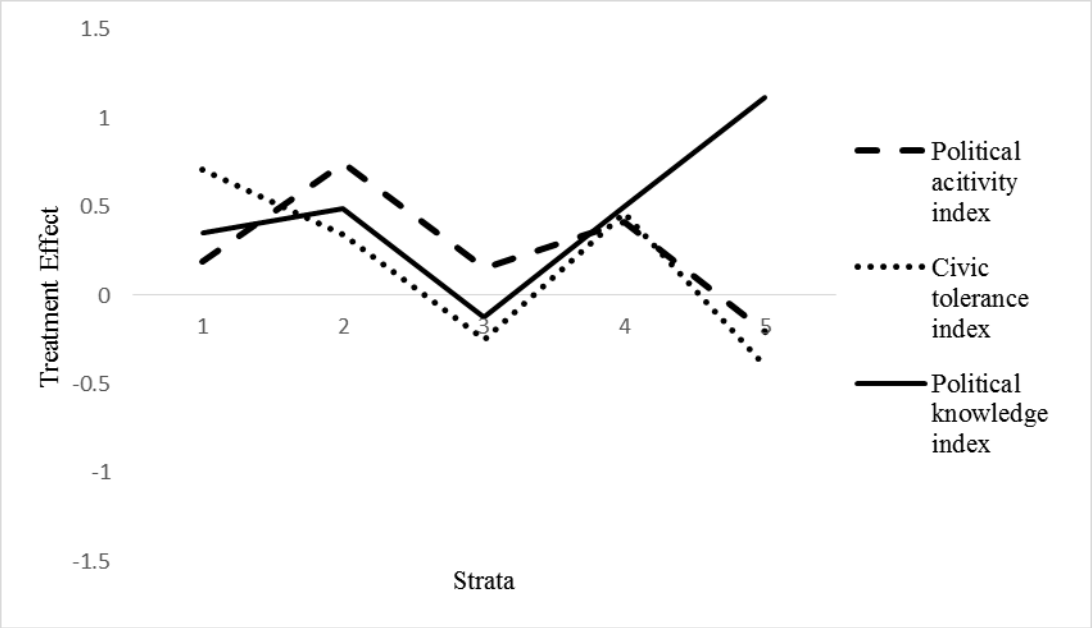

Figure 4. Treatment effects by stratum for having one's beliefs challenged in college

5.6 EFFECTS OF SOCIAL SCIENCE COURSE TAKING

In research question 3b, I seek to understand whether social science course taking has an impact on adult civic engagement outcomes. The variable socscicourses73 measures a self-reported amount of social science courses each respondent took during college. The variable was

constructed from a sum of binary response variables for course taking in the following subjects: sociology, history, economics, psychology, and government. The range of this summed variable was 0-42, with a median of 7. I then constructed a dummy variable for social science course taking, coded as 1 for respondents who took 7 or more social science courses and 0 for respondents who took less than 7. Like the other YPSPS treatment variables, this variable was measured during the 1973 survey wave when respondents were around 26 years of age.

5.6.1 Conditioning model

The conditioning model for social science course taking utilizes a similar set of covariates as the conditioning model for having one's beliefs challenged in college. Variables are related to family socialization, prior educational experience, and 1965 measures of the outcomes of interest. Like in the previous model, I first conducted a stepwise probit regression to get an early picture of the variables that were significant predictors of taking a minimum of 7 social science courses during postsecondary education, adding back in theoretically important variables. The regression equation for the probit regression model is as follows:

Equation 7. Conditioning model to estimate the social science course taking propensity score

$$probability\ of\ inclusion\ in\ treatment = \alpha + \beta_1[family\ social\ capital] + \beta_2[SES] + \beta_3[demographics] + \beta_4[political\ media\ consumption] + \beta_5[high\ school\ context] + \beta_6[degree\ aspirations] + \beta_6[political\ outcome\ scales] + \varepsilon$$

Exact variables included in the model differ slightly from those included in the beliefs challenged in college model given differences in predictors of the treatment and adjustments to

meet the balancing property in the propensity score calculation (e.g. removing variables that were not balanced after matching). I also conducted the Hosmer-Lemeshow and area under the ROC curve tests for both the minimal stepwise model and the full model, where addition or subtraction of variables in the model made little difference in model fit or adjusted r-squared. Further, the propensity scores estimated from these models produced similar results in terms of balance, common support and matching estimators. In order to estimate the propensity score, I used stata's *pscore* command to estimate the propensity score and divide the matched sample into 5 strata based on their propensity score. After several adjustments to the model, the balancing criteria were met. For details on the tests of the balancing property, see appendix F. The region of common support for the social science courses propensity score is .14-.85. This represents 570 observations, or 61% of the sample. Table 15 below presents the results of the probit regression used to estimate the propensity score.

Table 15. Conditioning model to estimate the social science course taking propensity score

	Coefficient		SE
Watch politics TV with family	0.101		0.23
Discuss politics with friends	-0.046		0.06
Spending money from parents	0.067		0.16
Ideology index	0.040		0.05
Internal efficacy index	0.148		0.11
Self confidence index	0.044		0.05
Personal trust index	-0.017		0.04
Political trust index	-0.078		0.07
Political knowledge index	0.110		0.06
Civic tolerance index	0.078		0.10
Courses increased interest in politics	0.008		0.13
Listen to politics on radio	0.020		0.04
Read about politics in newspaper	-0.024		0.06
Watch politics on TV	0.118		0.09
Read about politics in magazine	-0.044		0.10
Discuss politics with family	0.094		0.09
Discuss politics with an adult	-0.027		0.08
Plan to attend 4 year college	-0.015		0.17
High school vocational curriculum	-0.067		0.52
High school college prep curriculum	0.371		0.22
High school business curriculum	-0.765	*	0.36
Non-white	0.422		0.28
_cons	-1.780	*	0.82
Adjusted R-square	0.099		
N	347		

Note. ***p<.001, **p<.01, *p<.05

5.7 RESULTS OF THE PROPENSITY SCORE MODEL FOR SOCIAL SCIENCE COURSE TAKING

In this section, I first present descriptive statistics for the treated and untreated groups prior to matching that show differences between respondents who took at least 7 social science courses

and those that took less than 7 courses. I then present the average treatment effects on the treated for the three outcome variables and average treatment effects in each propensity score block.

5.7.1 Descriptive statistics

Means for each of the conditioning model covariates for those respondents who took 7 or more social science courses and those who took less than 7 social science courses in college are presented in Table 16 below. Variables with means for each group that are significantly different from each other point to characteristics on which the unmatched populations vary systematically from each other. In particular, respondents who took at least 7 social science courses had higher means for the internal efficacy index, understanding of party ideology index, political knowledge, civic tolerance, plans to attend a four year college, and taking college preparatory and business curriculum. Compared to white respondents, more nonwhite respondents took fewer than 7 social science courses.

Table 16. Pre-matching differences between the treated and untreated groups

	Took less than 7 social science courses n=214		Took 7 or more social science courses n=262		
	Mean	SD	Mean	SD	
Watch politics TV with family	0.898	302	874	0.332	
Discuss politics with friends	2.322	1.361	2.0996	1.211	
Spending money from parents	0.657	0.476	0.703	0.457	
Ideology index	2.738	1.62	3.226	1.669	**
Internal efficacy index	2.151	0.732	2.358	0.645	**
Self confidence index	4.939	1.728	5.158	1.638	
Personal trust index	2.225	2.094	2.258	2.055	
Political trust index	4.692	1.157	4.601	1.2	
Political knowledge index	4.822	1.413	5.412	1.219	***
Civic tolerance index	2.853	0.844	3.124	0.846	***
Courses increased interest in politics	2.502	0.624	2.531	0.624	
Listen to politics on radio	3.315	1.764	3.344	1.801	
Read about politics in newspapper	4	1.318	4.13	1.3	
Watch politics on TV	3.728	1.307	3.924	1.145	
Read about politics in magazine	2.385	0.847	2.454	0.837	
Discuss politics with family	3.09	0.978	3.225	0.879	
Discuss politics with an adult	1.967	1.025	2.01	1.029	
Plan to attend 4 year college	0.624	0.485	0.738	0.44	**
High school vocational curriculum	0.038	0.192	0.016	0.124	
High school college prep curriculum	0.612	0.488	0.848	0.36	***
High school business curriculum	0.144	0.351	0.027	0.163	***
Non-white	0.07	0.256	0.08	0.272	

Two sample t-tests ***p<.001, **p<.01, *p<.05

5.7.2 Treatment effects for all three outcome variables

In 1982, for those that took 7 or more social science courses, the impact of those courses was a 39.5% increase in political activity ($p<.05$). None of the other dependent variables were significantly impacted in 1982. In 1997, average treatment effects on the treated for all three dependent variables were not significant, meaning that there was no significant impact of taking 7 or more social science courses in college on the three 1997 civic engagement outcomes: political activity, political knowledge, or civic tolerance. Average treatment effects by stratum in 1997 also lacked a clear pattern overall, with effect sizes that were small and non-significant. Tables 17 and 18 and Figure 5 below present the details of these results.

Table 17. Average treatment effects on the treated for social science course taking

Dependent variable	Treatment	Control	ATT	SE
Political activity 1982	193	78	.395*	.16
Civic tolerance 1982	193	77	.22	.14
Political knowledge 1982	193	71	.156	.16
Political activity 1997	193	78	.167	.16
Civic tolerance 1997	193	77	.023	.13
Political knowledge 1997	193	77	-.014	.14

Note. ***p<.001, **p<.01, *p<.05; nearest neighbor matching was used due to insufficient observations in each stratum for stratification matching estimators.

Table 18. Treatment effects by stratum for social science course taking

	Political acitivity index	Civic tolerance index	Political knowledge index
1	-1.239	0.5	-0.515
2	-1.497	-0.186	0.207
3	-0.459	-0.4	0.459
4	0.117	0.364	-0.032
5	0.398	0.18	0.018
6	0.237	0.058	0.06
7	-1.056	-0.267	-0.229

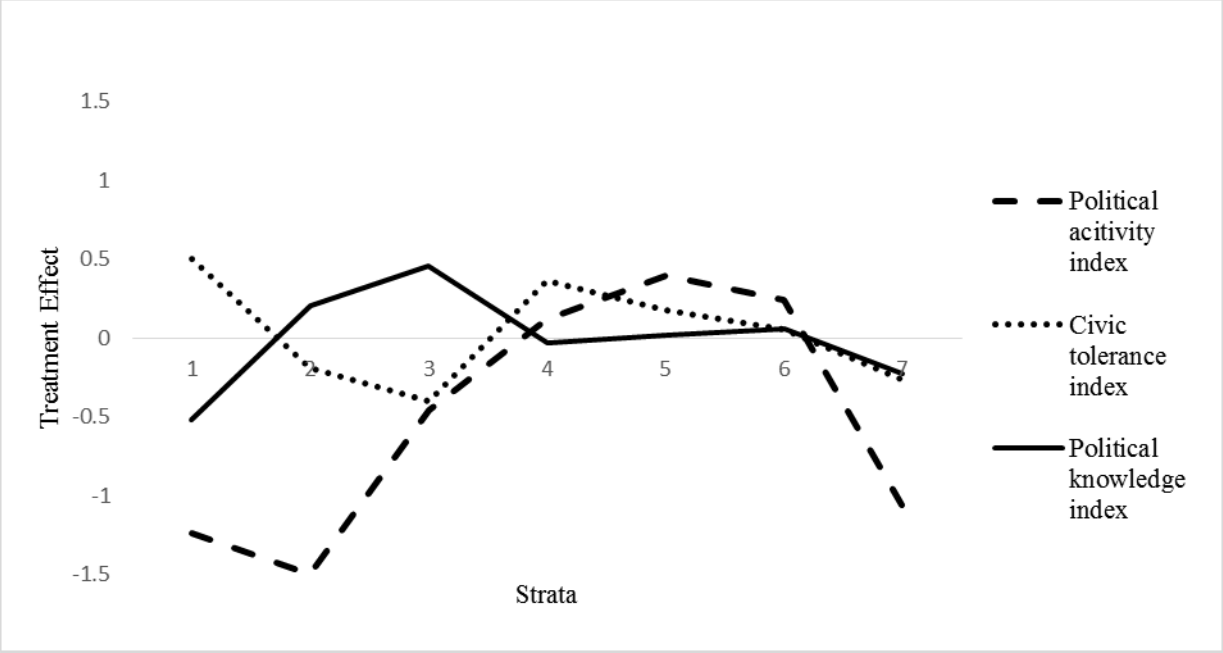

Figure 5. Treatment effects by stratum for social science course taking

5.8 EFFECTS OF RECEIVING A BACHELOR'S DEGREE

The final research question using data from the Youth-Parent Socialization Panel Study examines potential effects of receiving a bachelor's degree on political activity, civic tolerance,

and political knowledge in 1982 and 1997. The variable bachelors73 is a dummy variable for receipt of bachelor's degree. The variable is coded 1 if the respondent received a bachelor's degree and 0 if the respondent completed some college, but less than a bachelor's degree, or did not attend college at all. The variable was measured in 1973, when survey respondents were about 26 years of age, or around 8 years after graduating from high school.

5.8.1 Conditioning model

Like the conditioning models for having one's beliefs challenged in college and taking social science courses, the conditioning model for receiving a bachelor's degree includes variables related to family socialization, demographics, high school experience, and 1965 measures of the outcome variables. After conducting the stepwise probit regression on all 1965 variables to determine initial significant predictors, I then included the controls that were important according to theory. The equation for the probit regression is as follows:

Equation 8. Conditioning model to estimate the bachelor's degree propensity score

$$probability\ of\ inclusion\ in\ treatment = \alpha + \beta_1[family\ social\ capital] + \beta_2[SES] + \beta_3[demographics] + \beta_4[political\ media\ consumption] + \beta_5[high\ school\ context] + \beta_6[degree\ aspirations] + \beta_6[political\ outcome\ scales] + \varepsilon$$

Using stata's *pscore* command, I estimated the propensity score and divided the matched sample into 7 strata. The balancing property in those 7 strata was met. For details on the tests of the balancing property, see appendix F. The region of common support for the bachelor's degree

treatment is .20-.96. This represents 477 observations, or 51% of the sample. Results of the conditioning model to estimate the bachelor's degree propensity score are in Table 19 below.

Table 19. Conditioning model to estimate the bachelor's degree propensity score

	Coefficient		SE
Watch politics TV with family	0.560	**	0.20
Discuss politics with friends	0.037		0.06
Spending money from parents	0.097		0.14
Cosmopolitan index	0.086		0.06
School political activities	0.075		0.04
Ideology index	0.110	*	0.04
Internal efficacy index	0.179		0.10
Opinion strength index	0.033		0.04
Self confidence index	0.082		0.04
Personal trust index	-0.003		0.04
Political trust index	-0.007		0.06
Political knowledge index	0.180	**	0.06
Civic tolerance index	0.102		0.09
Courses increased interest in politics	-0.225	*	0.11
Listen to politics on radio	-0.042		0.04
Read about politics in newspapper	-0.130	*	0.06
Watch politics on TV	0.052		0.08
Read about politics in magazine	0.023		0.08
Discuss politics with family	-0.028		0.08
Discuss politics with an adult	-0.158	*	0.07
Plan to attend 4 year college	0.864	***	0.16
High school vocational curriculum	0.105		0.39
High school college prep curriculum	0.636	**	0.20
High school business curriculum	-1.189	*	0.50
Non-white	0.212		0.27
Constant	-3.708		0.79
Adjusted R-square	0.345		
N	564		

Note. ***p<.001, **p<.01, *p<.05

5.9 RESULTS OF THE PROPENSITY SCORE MODEL FOR RECEIVING A BACHELOR'S DEGREE

In the sections that follow, I show how bachelor's degree recipients differ from those who did not receive a bachelor's degree on the covariates that were included in the conditioning model. I then present treatment effects of receiving a bachelor's degree on 1997 outcomes; first, I show average treatment effects on the treated, then I discuss differences by propensity score strata.

5.9.1 Descriptive statistics

Means for variables in the conditioning model show a great deal of highly significant differences in those who received a bachelor's degree and those who did not, which are presented in Table 20 below. Means were higher for bachelor's degree recipients for a majority of the variables: discuss politics with friends, receive spending money from parents, cosmopolitan index, school political activity, internal efficacy, understanding of party ideology, self-confidence, personal trust, political knowledge, civic tolerance, reading magazines for political information, discussing politics with an adult, plans to attend a four year college, and participation in college preparatory and business curricula. High school courses were less likely to have increased their interest in politics. White respondents were more likely than nonwhite respondents to be in the bachelor's degree recipient group. Additionally, respondents who participated in a vocational program in high school were less likely to have a bachelor's degree.

Table 20. Pre-matching differences between treated and untreated groups

	Did not receive bachelor's degree n=214		Received bachelor's degree n=262		
	Mean	SD	Mean	SD	
Watch politics TV with family	0.861	0.346	0.854	0.354	
Discuss politics with friends	2.364	1.407	2.1174	1.274	*
Spending money from parents	0.581	0.494	0.711	0.454	***
Cosmopolitan index	5.077	1.545	5.739	1.112	***
School political activities	2.811	1.654	3.524	1.564	***
Ideology index	2.464	1.541	3.358	1.646	***
Internal efficacy index	2.018	0.701	2.368	0.651	***
Opinion strength index	4.489	1.752	4.657	1.824	
Self confidence index	4.678	1.711	5.384	1.59	***
Personal trust index	4.99	2.15	5.382	1.924	**
Political trust index	4.578	1.192	4.644	1.188	
Political knowledge index	4.294	1.419	5.525	1.238	***
Civic tolerance index	2.604	0.88	3.124	0.823	***
Courses increased interest in politics	2.536	0.604	2.395	0.691	**
Listen to politics on radio	3.378	1.747	3.24	1.824	
Read about politics in newspaper	3.93	1.383	4.041	1.35	
Watch politics on TV	3.847	1.283	3.781	1.234	
Read about politics in magazine	2.182	0.928	2.454	0.835	***
Discuss politics with family	3.071	0.962	3.136	0.928	
Discuss politics with an adult	2.113	1.075	1.927	1.006	*
Plan to attend 4 year college	0.398	0.49	0.843	0.364	***
High school vocational curriculum	0.107	0.309	0.009	0.097	***
High school college prep curriculum	0.366	0.482	0.876	0.33	***
High school business curriculum	0.24	0.428	0.012	0.112	***
Non-white	0.099	0.299	0.054	0.226	*

Two sample t-tests ***p<.001, **p<.01, *p<.05

5.9.2 Treatment effects for all three outcome variables

The average treatment effects on the treated for receiving a bachelor's degree had positive and significant impacts on civic tolerance (p<.01) and political knowledge (p<.01), meaning that for those who received a bachelor's degree, the effect of that degree was an increase in civic

tolerance and political knowledge. In 1997, however, despite the significant differences in those who received a bachelor's degree and those that did not before matching, for each of the three outcome variables (political activity, civic tolerance, and political knowledge), the effect of bachelor's degree receipt after matching was non-significant (as shown in Tables 21 and 22 and Figure 6 below). This means that, accounting for observables included in the propensity score conditioning model, there is no significant effect of receiving a bachelor's degree on political outcomes in 1997. For civic tolerance, those in the lowest propensity score stratum – that is, those least likely to attain a bachelor's degree – stood to benefit the most in terms of these outcomes. For political knowledge, those in the two lowest stratum had the highest mean difference in outcome. These findings should be interpreted very cautiously, however, given the very small and non-significant ATTs.

Table 21. Average treatment effects on the treated for bachelor's degree using stratification matching

Dependent variable	Treatment	Control	ATT	SE
Political activity 1982	209	268	.269	.17
Civic tolerance 1982	209	268	.285**	.14
Political knowledge 1982	209	268	.196**	.08
Political activity	209	268	.064	.17
Civic tolerance	209	268	.077	.07
Political knowledge	209	268	-.008	-.01

Note. ***p<.001, **p<.01, *p<.05

Table 22. Treatment effects by stratum for bachelor's degree

	Political acitivity index	Civic tolerance index	Political knowledge index
1	0.412	0.71	0.403
2	-0.372	0.618	0.629
3	0.083	0.374	0.079
4	0.315	0.039	0.131
5	0.321	0.12	-0.057
6	-0.584	-0.306	-0.301

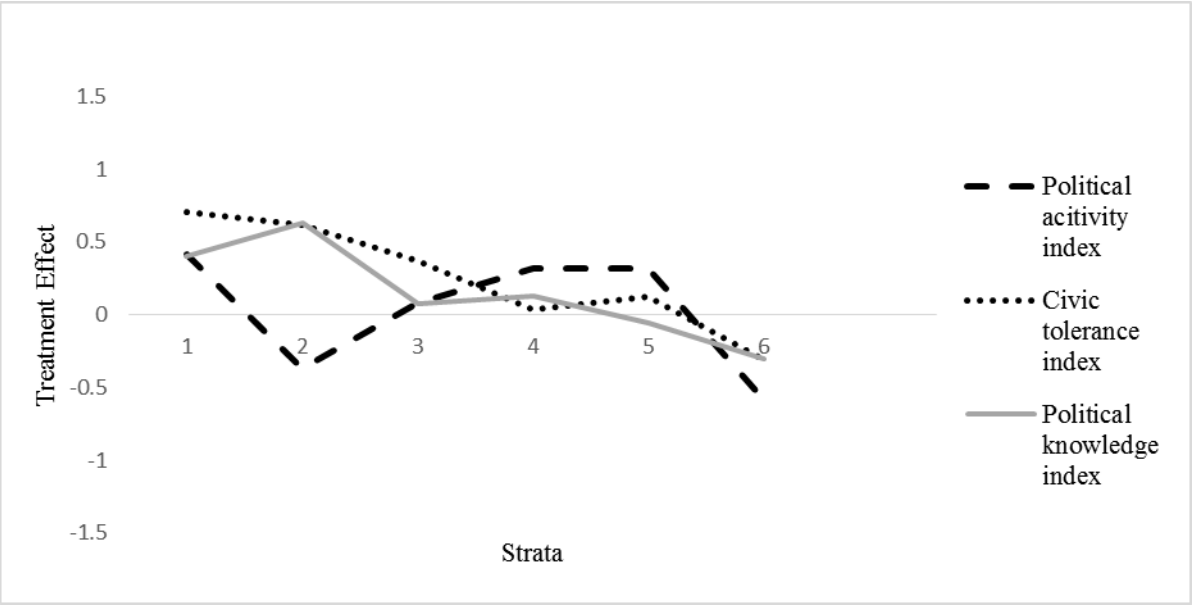

Figure 6. Treatment effects by stratum for bachelor's degree

The results of all three propensity score models demonstrate that there are more significant effects of the three treatments at times that are temporally more proximate to the treatment. That is, effects of the college experience on civic engagement may fade over time. However, the positive and significant effects of the beliefs challenged in college treatment on both political activity and political knowledge in 1997 demonstrates that there are important lasting effects of the college experience, more than 20 years after college. It should also be

noted, however, that the means for the three dependent variables are higher in 1997 than in 1982, suggesting that respondents' civic engagement may have been increasing with time and other experiences, potentially mediating the effect of the college experience.

5.10 ROBUSTNESS CHECKS

Conditioning models were tested for model fit using Hosmer-Lemeshow and area under the ROC curve tests, where addition or subtraction of variables in the model made little difference in model fit or adjusted r-squared. To test for robustness of the propensity score models, I conducted the analysis using other available matching estimators to ensure that results were consistent across estimator. These included: nearest neighbor, direct nearest neighbor with Mahalanobis metric matching, and inverse probability weighting. The direction, magnitude, and significance of the ATTs were similar across approaches. The ATTs for these various matching estimators are presented in Appendix E.

5.11 SUMMARY

This chapter had two key findings. First, for the sample of students who were high school seniors in 1965, whether one's beliefs are challenged in college is the only treatment whose effects persist until 1997. For those whose beliefs were challenged in college, the effect was positive for the political activity index and the political knowledge index, but not for civic tolerance. This is consistent with findings from the analysis in Chapter 4; what happens during college has an

impact on the more "active" outcomes, but has a weaker effect on beliefs. Taking social science courses did not have a significant impact on any 1997 outcomes, and, despite significant mean differences in a number of variables before matching, bachelor's degree attainment did not have an effect on any of the 1997 outcomes (consistent with Kam & Palmer's (2008) findings about the effect of attending college on civic engagement). The second key finding is that although college experiences appear to have a greater impact on civic engagement outcomes that are more temporally proximate to the treatment as demonstrated by the findings from the analyses with 1982 outcomes, there are important lasting effects more than 20 years after the college experience.

6.0 DISCUSSION AND CONCLUSIONS

6.1 INTRODUCTION

The purpose of this dissertation was to better understand the ways in which college students are politically socialized by different aspects of the college experience, both through increased methodological rigor to mitigate selection bias and through the use of complementary datasets to understand short- and longer-term effects of the college experience on civic engagement. Specifically, I sought to answer the following three research questions:

- RQ1: What is the impact of extracurricular participation in college on young adult civic engagement?
- RQ2: What is the impact of attending a private postsecondary institution on young adult civic engagement?
- RQ3: Does the effect of the college experience on civic engagement persist past young adulthood?
    - RQ3a: Does having one's beliefs challenged in college impact civic engagement later in life?
    - RQ3b: Does social science course taking in college impact civic engagement later in life?
    - RQ3c: Does receiving a bachelor's degree impact civic engagement later in life?

In chapters 1-5, I reviewed the current state of the literature on civic engagement in higher education, highlighting the selection bias challenge that researchers consistently face in this type of research, and conducted propensity score matching analyses to understand the impact of various college experience variables as described in the research questions above on outcomes related to political and civic behaviors and social justice attitudes. In the remainder of this chapter, I briefly summarize the study's key findings, describe the study's main limitations, and present recommendations for higher education practice and future research.

6.2 SUMMARY AND KEY FINDINGS

This study addresses a key methodological challenge in the literature on civic engagement by using propensity score matching to help reduce the effects of selection bias. Specifically, I use a conceptual model informed by the literature on political socialization and pre-college civic education to understand the impact of both in college and out of college experiences on civic engagement outcomes.

This study's first key finding is that college involvement, more than the type of institution attended, has an impact on young adult civic engagement outcomes. Findings from the individual research questions add more specificity. First, the propensity score matching analysis using data from ELS:2002 showed that, for those who participated in extracurricular activities, there was a positive and significant effect on voting, community engagement, and social justice orientation approximately 6 years out of college. The effect was strongest for the more active outcomes, voting and community engagement, while the impact on attitudes (social justice orientation) was smaller and less significant.

The conditioning model for the extracurricular participation propensity score showed that attendance at a private institution was a positive and significant predictor of extracurricular participation. Building on this, the second research question asked whether attendance at a private institution had an impact on civic engagement outcomes. Preliminary descriptive statistics and regression analyses were consistent with previous research that the college experience matters more than institutional differences; however, there was a dearth of methodological approaches accounting for selection bias in answering this question. The propensity score matching analysis showed that, for those who attended a private institution, there was a positive effect on performing volunteer work as a young adult, but not for any of the other outcomes, confirming that institutional characteristics matter less than the college experience. The positive and significant regression coefficient and the intraclass correlation coefficients that show institutions explain only a small part of the variance in outcomes suggest, however, that the impact of private institution attendance on civic engagement may be operating indirectly through the association between private institutions and extracurricular participation.

The second key finding in this study is that there are lasting effects of the college experience, some of which persist more than 20 years after college, which is supported by the analysis using data from the YPSPS. For the sample of students who were high school seniors in 1965, whether one's beliefs are challenged in college had a lasting effect on 1997 outcomes. For those whose beliefs were challenged in college, the effect was positive for the political activity index and the political knowledge index. This is consistent with ELS findings that what happens during college has an impact on the more "active" outcomes, but has a weaker effect on beliefs. Taking social science courses did not have a significant impact on any outcomes, and, despite significant mean differences in a number of variables before matching, bachelor's degree

attainment did not have an effect on any of the outcomes. Around 10 years after the college experience, in 1982, there were also many positive and significant effects. The beliefs challenged in college treatment was associated with an increase in political activity and civic tolerance, taking 7 or more social science courses in college led to an increase in political activity, and receiving a bachelor's degree was associated with increases in civic tolerance and political knowledge.

6.3 LIMITATIONS

In conducting this research, I faced several limitations, some of which were specific to each of the datasets used, and some more general data or methodological limitations. These limitations are described in more detail in the following sections.

6.3.1 Limitations of the ELS dataset

The ELS dataset has many features that make it well suited for this analysis, including longitudinal data, parent survey data, and detailed information about the high school and college experience. The college experience data are further enhanced by the ability to merge ELS with IPEDS data. However, the outcomes related to political and civic engagement are more limited, given the survey's focus on workforce outcomes in the final follow up. Further, the outcomes are measured when respondents who completed four years of college on a traditional timeline would be approximately 6 years out of college, around 26 years of age. These young adult outcomes are informative, yet they do not shed light on the longevity of the results.

6.3.2 Limitations of the YPSPS dataset

The YPSPS dataset complements the ELS dataset in that it provides a high level of detail in terms of political outcomes, and it surveys respondents for a longer period of time, until they are approximately 50 years of age, allowing for an assessment of the longevity of effects on a more detailed set of outcomes. However, the dataset also has several limitations. First, the YPSPS sample size (n=935) is much smaller than that of the ELS dataset (n=16,180), making it more difficult to construct treatment and comparison groups for the propensity score matching analysis. As a result of the small sample size, the comparison group in the YPSPS propensity score matching models includes non-college goers. An ideal comparison would have been to limit the sample to only those who attended college; however, this greatly reduced the comparison group sizes. I did test the analysis with this limited sample, obtaining similar results across outcomes and treatments. Additionally, because I use average treatment effect on the treated (ATT), this is the outcome for only those who received the treatment, rather than the population level effect if the untreated had received the treatment (average treatment effect, ATE). Second, the treatment variables, while closest temporally to the college experience, do rely on respondent recall of their college experience, as the variables were measured approximately 2 years out of college for those on a traditional trajectory. The college experience variables are also more limited than those available using ELS and IPEDS.

6.3.3 General

There are several other, more general, limitations of this analysis. First, given the substantial generational difference between the YPSPS sample and the ELS sample, the extent to which

comparisons can be made is limited. Students who were high school seniors in 1965 were exposed to a very different cultural and political context than students who were high school seniors in 2004. As such, comparisons between the two datasets should be interpreted with caution. Also on the subject of comparability, I was unable to make direct matches between the variables used in the ELS analysis and those used in the YPSPS analysis. For instance, there were no institutional characteristics available, nor were respondents asked about college extracurricular participation. As such, I included variables that were measures of the college experience, albeit different facets of the college experience. Appendix F provides a crosswalk between dependent variables from both datasets. Finally, even the best propensity score conditioning model cannot eliminate all unobservable factors. In order to construct conditioning models that were as complete as possible, I drew on theories of out of college political socialization from sociology, political science, and education.

6.4 CONTRIBUTIONS TO THE LITERATURE

This study provides both methodological and substantive contributions to the literature on civic engagement in higher education, which are described in the following sections.

6.4.1 Methodological contributions

Propensity score matching has gained a great deal of popularity recently in research on higher education as a means to mitigate selection bias issues that pervade the field. It has been used to examine outcomes other than civic engagement, including: the effect of receiving a master's

degree on wages (Titus, 2007); the impact of choosing a STEM major on earnings (Olitsky, 2014); institution type effects on college completion (Flores & Park, 2015); or participation in freshman seminars on academic achievement and retention (Clark & Cundiff, 2011). However, despite its growing use and popularity in the field, research on civic engagement using propensity score matching is still very limited (for an exception, see Bowman et al., 2015). As such, this study makes a substantial methodological contribution to the body of research on civic engagement in higher education, using two nationally representative, longitudinal datasets to build on existing correlational research and move further toward establishing causal relationships. Further, this study advances an interdisciplinary theoretical framework in a field where the theoretical field is fragmented. As this study's findings demonstrate, there are systematic and theoretically important differences between college students who get involved in certain activities and those who do not, and policymakers and practitioners should use caution when using correlational studies to inform decision-making.

This study also contributes an interdisciplinary theoretical framework to a field where such perspectives are generally lacking. This is an important contribution because the theoretical frame draws on a well-established body of research in sociology and political science that provides strong evidence of how people are socialized politically, which allows for a better understanding of the mechanisms behind political socialization in college.

6.4.2 Within and between college effects

One of this study's key findings is that the experiences students have in college matter more than the type of institution they attend in terms of promoting civic engagement outcomes. That is, *within* college effects are stronger than *between* college effects. In particular, the second ELS

propensity score model showed that attending a private institution has only a small effect on one outcome, volunteer work. Descriptive statistics, intraclass correlation coefficients, and an ordered probit regression analysis all supported this finding, showing that extracurricular participation explained more variance in outcomes than institution type. This is consistent with other research that shows the strength of the within college effect for many other outcomes in higher education (for a review, see Pascarella & Terenzini, 2005). This study, however, is one of the first to do so in studies of civic education. One existing study found that private institution attendance was associated with persistence of political values (Lott et al., 2013). However, the authors' use of the Baccalaureate and Beyond dataset limited their ability to control for pre-college factors that impact selection, nor did their method (structural equation modeling) provide as rigorous a means to mitigate selection bias as does propensity score matching.

This finding is promising for equity in civic engagement, because it suggests that students at all types of institutions may benefit from college involvement in terms of future civic engagement. One caveat to this implication, however, is that there may be an indirect effect of private institutions operating through the impact of private institutions on opportunities for extracurricular participation. This was observed in the conditioning model for the extracurricular participation propensity score model, and is consistent with existing research (e.g. Stuber, 2011). As such, practitioners at public and for profit institutions should consider promoting student engagement in a broad range of extracurricular and co-curricular activities.

6.5 RECOMMENDATIONS FOR POLICY AND PRACTICE

Based on the key findings in this dissertation, I offer in this section several recommendations for higher education practitioners and researchers.

6.5.1 Generation effect

Differences in the effects of the college experience on civic engagement outcomes may be a result of the influence of a generation, or cohort, effect on political socialization, rooted in Mannheim's (1928) political "generation units." The generation units, as Mannheim conceptualized them, are groups of people born at the same time that experience and internalize current events in similar, even identical, ways, such that they are "formed by their common experience" (p. 122). Put another way, historical events impact different generational cultures in different ways (Mishler & Rose, 2007). New generations also have different ideas about and ways of processing than that which is passed on from previous generations, thus adding to generational differences (e.g. Jennings et al., 2009; Jennings, 2002).

Political events or a certain time period can have an effect on political behavior independent of generational effects. Period effects can be attributed to institutionalization of civic engagement outcomes; that is, as protesting has become institutionalized, it has become less risky, which in turn removes some barriers to participation. Generation effects are related to the political or social context of identity formation, where individuals associate with particular identities that were shaped by the political climate of the time (Caren, Ghoshal, & Ribas, 2011). As such, practitioners should be aware of potential generational differences in how students are

socialized politically. What worked for a previous generation may not be as effective for current students (Bennett, Wells, & Rank, 2009).

6.5.2 Attitudes and behaviors

The results of both the ELS and YPSPS analyses showed that the impact of the college experience was stronger on the more "active" behavioral outcomes, rather than outcomes related to attitudes. In the ELS analysis, social justice orientation was positively impacted by extracurricular activities, but the magnitude and significant of that impact was small in comparison to the impact extracurricular participation had on voting and community engagement. Similarly, the YPSPS analysis showed that having one's beliefs challenged in college had a positive and significant impact on political activity, but had no significant effect on civic tolerance. This finding is important to consider, as the frequency of a behavior might increase as a result of involvement in activities that provide opportunities for political socialization, but the intent or content of those behaviors will likely be less affected. For instance, someone who became more politically active as a result of the college experience but whose civic tolerance values were unchanged might be civically engaged but engaging in activities that are not consistent with democratic or civic values. As such, researchers in particular should endeavor to better understand the types of activities that influence different kinds of outcomes. Practitioners may consider collecting data or tracking student participation in different types of college activities to better inform which programs are promoted.

6.5.3 Stratification and inequality

Systematic differences between students who receive higher and lower levels of political socialization in the family. Descriptive statistics for ELS data in Section 4.4 show that students with lower family socialization participate in activities where they could be politically socialized less often. These descriptive statistics are reflective of consistent patterns of inequality. Because family SES and social capital are important to political socialization of children, those students who have less exposure to political socialization are likely many of the same students who already face disadvantage in education and, as a result, as adults (CIRCLE, 2013b). If students with low levels of political socialization are also less likely to vote and be engaged in their communities, it is especially important to explore the ways in which schools can work to mediate this imbalance, encouraging equal political participation in the future.

Differences between propensity score strata in the analysis using ELS data further highlight the importance of considering inequalities in family social capital and political socialization. Those who are least likely to participate in extracurricular activities in college are 41% white, 47% female, attend public high schools (84%), and are primarily in the lower two SES and family socialization quartiles. In comparison, the highest propensity score block for extracurricular participation (those most likely to participate in extracurricular activities in college) is 70% white, 65% female, 52% public high school attendees, and primarily in the top two SES and family political socialization quartiles. This study's findings show that those who are least likely to participate in extracurricular activities stand to benefit the most in terms of increased voting behavior, which has the potential to mediate SES and race/ethnicity based inequalities in youth voting (Dávila & Mora, 2013). Differently, those who are already most likely to participate in extracurricular activities are those who benefit the most from participation

in terms of increased community engagement. This is a troubling finding, as it speaks to potential social reproduction. As such, practitioners should seek to promote extracurricular involvement for all students given the overall positive treatment effects, and especially for those who are least likely to get involved in college, given the potential of extracurricular participation to mediate existing inequalities in civic engagement outcomes.

6.6 FUTURE RESEARCH

This dissertation's findings inform two main recommendations for future research, related to data and methodology. First, future research on civic engagement in higher education should develop richer and more appropriate datasets for research on young adult civic engagement in the current generation. Second, future research should extend the propensity score analysis done in this dissertation to provide a more nuanced picture of the effects of the college experience on civic engagement.

Researchers should re-conceptualize outcomes to make them more relevant to *today's* college students, as researchers have shown that college students and young adults are becoming politically active in different ways than their peers in past generations (Levine & Dean, 2012) and they think about the meaning of "good" citizenship in new ways (Dalton, 2008). Scholars have also pointed to the impact of globalization, which is relevant given the time periods in which both cohorts were situated. The implication of this shift, according to Bennett et al. (2009), is that youth are more inclined to participate politically in less traditional ways, often through social networking. This is consistent with research in higher education that shows increases in online activism and individualized activities with lower levels of risk (Levine &

Dean, 2012; Perna & Thomas, 2005). Further, the increased presence of digital media has also changed youth learning styles, which are most notably network-based and collaborative, as opposed to individual knowledge accumulation in traditional classroom settings (Bennett et al., 2009). In addition to developing more relevant outcomes for millennial students, better data are also needed to improve understanding of the types of activities in which students and adults are engaging, both in terms of socializing experiences and later adult civic engagement. In particular, given the finding that attitudes are less affected by college experiences, it is important to begin to understand how to more effectively promote attitude development, especially with regards to social justice and civic tolerance. Richer quantitative data, and especially more qualitative research, would support this effort.

In order to better understand these new and different forms of civic engagement and the ways in which today's students are socialized politically, researchers should move away from reliance on the same set of secondary datasets, and work to construct survey instruments that are designed to measure more specific components of the political socialization process. For instance, more variables related to student attitudes prior to and during college would further support the construction of appropriate and more complete conditioning models. Treatment variables should also be measured at the time of participation, rather than relying on respondent recall of events or attitude changes in college. Measures of the college experience should also be more nuanced, allowing researchers to not only better understand which specific pieces of the college experience impact outcomes, but also to account for interactions between different college experiences and out of college agents of political socialization. My theoretical model accounts for potential interactions between different aspects of the college experience and the pervasive effects of the out of college political socialization factors, but most secondary datasets

do not provide enough nuance in variables to measure effects like these. As such, better, more detailed survey instruments are critical to continuing research on civic engagement into the current generation of young people. Additionally, given the well-established and wide base of quantitative research on the relationship between the college experience and civic engagement outcomes, researchers should turn their attention to increasing the quantity and rigor of qualitative research on civic engagement, which would allow for a deeper understanding of the mechanisms at play behind established relationships between the college experience and civic engagement.

Methodologically, future research should focus on extending the basic propensity score matching analysis to account for more complex potential mediating relationships and interactions between out of college factors and college experiences. For example, an individual may participate in extracurricular activities and take social science courses; this concurrent participation may have interaction effects that are not tested in the propensity score matching analysis in this dissertation. Further, the current analysis does not illuminate whether the impact of a particular treatment was solely due to participation, or whether it may have been due to a mediating factor related to that participation, for instance, exposure to targeted recruitment as a result of participation in a particular voluntary organization. These types of relationships could be studied by including the propensity score in regression analyses that focus on interaction effects, and again, by extending the qualitative research base.

Another useful extension of the propensity score matching analysis would be to measure intensity of participation in an activity, or "dosage" analyses that use treatment variables that are categorical or continuous (Guo & Fraser, 2010). This type of analysis would allow researchers to understand whether the amount of exposure to a particular treatment has an impact on civic

engagement outcomes. For instance, the current analysis measures social science course taking as a binary variable, but an analysis with a continuous social science course taking variable would allow me to show whether the exact amount of courses taken matters in terms of the magnitude of the effect.

Finally, although the conditioning models in this analysis include strong sets of theoretically based predictors, there are still potential unobservables. Further sensitivity checks would allow for stronger claims about causal relationships between treatments and outcomes. For example, Rosenbaum's bounding approach (Guo & Fraser, 2010; Rosenbaum, 2002) allows the researcher to test the model's sensitivity to the ignorable treatment assignment assumption, which is the assumption that, conditional on the pre-treatment covariates, the observations are randomly assigned to treatment. When there are unobservables unaccounted for the in the conditioning model, however, bias may be introduced into the estimates. The bounding approach provides a measure of the strength with which an unobserved variable would need to impact selection into treatment in order to introduce bias into the treatment effect estimates.

6.7 CONCLUSION

The key findings in this dissertation are that, for those who get involved in certain college activities, the effect of that involvement is increased civic engagement, more so for behavioral outcomes than for attitudinal outcomes. Further, these effects may not persist far beyond young adulthood, as evidenced by findings from the analysis using data from the Youth-Parent Socialization Panel Study. While propensity score matching provides a viable option for mitigating the selection bias associated with studying civic engagement, the inability to include

all possible unobservables in the model limits the degree to which these relationships can be deemed causal. The relationships found in this study, however, build on existing correlational work to make stronger, less biased claims about college student political socialization. Limited comparability between the two datasets resulting from inconsistencies in variables and potential generational differences means that comparing the findings from the two datasets must be done cautiously. This study also contributes to the literature on civic engagement in higher education by providing evidence that, like studies of other outcomes in higher education, the "within college" effect matters more than the "between college" effect for civic engagement outcomes.

These key findings inform several recommendations for practice and future research. First, higher education practitioners should remember that generational differences may affect the appropriateness or effectiveness of policies designed to promote civic engagement for today's millennial undergraduate students. Second, attitudes are less affected by the college experience than behaviors, and, as such, the types of activities in which students engage should be better understood by researchers and practitioners. Third, patterns of inequality in pre-college political socialization and between propensity score strata point to the importance of promoting college involvement for all students, and especially for those least likely to participate (who, as the ELS analysis showed, stood to benefit the most). Finally, researchers should work to use richer data, both qualitative and quantitative, to better understand the types of activities in which people engage and to better measure outcomes that are relevant to today's millennial college students.

APPENDIX A

DETAILS FOR VARIABLES INCLUDED IN CONDITIONING MODELS USING DATA FROM THE EDUCATION LONGITUDINAL STUDY

A.1 DESCRIPTIVE STATISTICS FOR EXTRACURRICULAR MODEL

Table 23. Descriptive statistics for extracurricular model

Variable	N	Mean	SD	Min	Max
Discuss current events with parents	7,000	2.05	0.71	1	3
Family SES Quartile	8,490	2.91	1.08	1	4
Homework hours*	7,970	4.62	1.80	1	9
Belong to parent-teacher organization	6,980	0.33	0.47	0	1
Parents limit TV and video games	7,200	2.29	1.05	1	4
Discuss school courses with parents	7,060	2.21	0.66	1	3
Race/ethnicity (reference: white)					
Latino/a	8,490	0.11	0.31	0	1
African American	8,490	0.11	0.31	0	1
AAPI	8,490	0.12	0.33	0	1
Other race/ethnicity	8,490	0.05	0.21	0	1
Importance of helping others in community	8,170	2.39	0.58	1	3
Degree aspirations	8,490	2.60	0.93	1	4
High school extracurriculars	8,160	0.87	0.33	0	1
High school census region					
South	8,490	0.35	0.48	0	1
Midwest	8,490	0.26	0.44	0	1

Table 23. Descriptive statistics for extracurricular model (continued)

Variable	N	Mean	SD	Min	Max
West	8,490	0.20	0.40	0	1
High school GPA	7,900	2.55	0.63	1	4
Postsecondary institution urbanicity (reference: rural)					
Urban	8,290	0.56	0.50	0	1
Suburban	8,290	0.36	0.48	0	1
Postsecondary institution census region (reference: Northeast)					
South	8,490	0.35	0.48	0	1
Midwest	8,490	0.25	0.43	0	1
West	8,490	0.19	0.39	0	1
Land grant	8,320	0.13	0.33	0	1
Graduate degree offerings	8,310	0.62	0.49	0	1
Postsecondary Institution Control (reference: public)					
Private nonprofit	8,310	0.22	0.42	0	1
For profit	8,310	0.04	0.19	0	1

A.2 DESCRIPTIVE STATISTICS FOR PRIVATE INSTITUTION MODEL

Table 24. Descriptive statistics for private institution model

Variable	N	Mean	SD	Min	Max
SES quartile	8350	2.92	1.08	1	4
Homework hours	7850	4.63	1.80	1	9
Belong to parent-teacher organization	6860	0.33	0.47	0	1
Parents limit TV and video games	7110	2.29	1.05	1	4
Parental education: 2 year degree	8030	0.09	0.29	0	1
Parental education: 4 year degree	8030	0.28	0.45	0	1
Parental education: Graduate degree	8030	0.26	0.44	0	1
More than 50 books in home	7330	0.88	0.33	0	1
Discussion of school with parents index	6440	2.08	0.58	1	3
Race/ethnicity					

Table 24. Descriptive statistics for private institution model (continued)

Variable	N	Mean	SD	Min	Max
Latino/a	7330	0.88	0.33	0	1
African American	8,350	0.11	0.31	0	1
Asian and Pacific Islander	8,350	0.12	0.33	0	1
Other	8,350	0.05	0.21	0	1
High school extracurricular participation	8,030	0.87	0.33	0	1
High school GPA	7,780	2.55	0.62	1	4
Highest high school math course taken	8,060	5.48	0.86	1	6
High school census region					
South	8,350	0.35	0.48	0	1
Midwest	8,350	0.26	0.44	0	1
West	8,350	0.20	0.40	0	1
High school academic climate	6,960	0.03	0.16	-0.63	0.27
Degree aspirations	8,350	2.61	0.93	1	4
Importance of getting a good education	8,050	2.92	0.28	1	3
Importance of being successful in line of work	8,080	2.92	0.28	1	3
How much education respondent thinks necessary for desired work					
2 year degree	5,730	0.09	0.29	0	1
4 year degree	5,730	0.38	0.49	0	1
Master's degree	5,730	0.27	0.44	0	1
Doctorate/Advanced Prof.	5,730	0.23	0.42	0	1
Highest PS institutional selectivity (applied)	8,080	3.08	1.10	1	4
Highest PS institutional selectivity (accepted)	7,960	2.89	1.16	1	4
Applied for financial aid	8,060	0.76	0.43	0	1
Chose PS institution for program	8,340	0.56	0.50	0	1
Chose PS institution for reputation	8,340	0.52	0.50	0	1
Chose PS institution for cost	8,340	0.53	0.50	0	1

A.3 VARIABLE DESCRIPTIONS AND CODING

Table 25. Variable descriptions and coding

Variable	Description
Discuss current events with parents	*In the first semester or term of this school year, how often have you discussed current events with either or both of your parents or guardians?; 1, never; 2, sometimes; 3, often*
SES quartile	*Family SES quartile; 1-4*
Homework hours	*Hours per week spent on homework both in and out of school; 1-9*
Belong to parent-teacher organization	*Dummy; 1 if belong to PTO, 0 otherwise*
Parents limit TV and video games	*How often do your parents limit TV watching or video games?; 1, never; 2, rarely; 3, sometimes; 4, often*
Parental education: 2 year degree	*Dummy; 1 if parent has 2 year degree, 0 otherwise*
Parental education: 4 year degree	*Dummy; 1 if parent has 4 year degree, 0 otherwise*
Parental education: Graduate degree	*Dummy; 1 if parent has graduate degree, 0 otherwise*
More than 50 books in home	*Dummy; 1 if more than 50 books in home, 0 otherwise*
Discussion of school with parents index	*In the first semester or term of this school year, how often have you discussed school courses with either or both of your parents or guardians?; 1, never; 2, sometimes; 3, often*
Race/ethnicity	
Latino/a	*Dummy; 1 if Latino/a, 0 otherwise*
African American	*Dummy; 1 if African American, 0 otherwise*
Asian and Pacific Islander	*Dummy; 1 if AAPI, 0 otherwise*
Other	*Dummy; 1 if other race, 0 otherwise*
Importance of helping others in community	*1, not important; 2, somewhat important; 3, very important*
High school extracurricular participation	*Dummy; 1 if participated, 0 otherwise*
High school GPA	*High school GPA; 1-4*
Highest high school math course taken	*Highest math course taken in high school; 1, none; 2, pre-algebra or general; 3, algebra I 4, geometry; 5 algebra II; 6, trigonometry, pre-calculus or calculus*
High school census region	
South	*Dummy; 1 if South, 0 otherwise*
Midwest	*Dummy; 1 if Midwest, 0 otherwise*

Table 25. Variable descriptions and coding (continued)

West	*Dummy; 1 if West, 0 otherwise*
High school academic climate	*Scale of the base-year school administrators perceptions of the school's academic climate. Higher values represent perceptions of a more academically-oriented climate.*
Degree aspirations	*Student plans post-high school; 1, no degree; 2, Vocational; 3, 2-year; 4, 4-year*
Importance of getting a good education	*1, not important; 2, somewhat important; 3, very important*
Importance of being successful in line of work	*1, not important; 2, somewhat important; 3, very important*
How much education respondent thinks necessary for desired work	*How much education do you think you need to get the job you expect or plan to have when you are 30 years old?*
2 year degree	*Dummy; 1 if 2 year degree, 0 otherwise*
4 year degree	*Dummy; 1 if 4 year degree, 0 otherwise*
Master's degree	*Dummy; 1 if master's degree, 0 otherwise*
Doctorate/Advanced Prof.	*Dummy; 1 if doctorate/advanced prof., 0 otherwise*
Highest PS institutional selectivity (applied)	*Carnegie selectivity classification of highest selectivity institution to which student applied (1, not classified; 2, 4 year inclusive; 3, 4 year moderately selective; 4, year highly selective)*
Highest PS institutional selectivity (accepted)	*Carnegie selectivity classification of highest selectivity institution to which student was accepted (1, not classified; 2, 4 year inclusive; 3, 4 year moderately selective; 4, year highly selective)*
Applied for financial aid	*When you were in high school, did you or your family apply for financial aid such as grants, scholarships, fellowships, loans, or work-study to help pay for your education at these schools? Dummy; 1 of applied, 0 otherwise*
Reasons for choosing postsecondary institution	*Why did you decide to attend [first attended postsecondary institution]?*
Chose PS institution for program	*Dummy; 1 if chose institution for program, 0 otherwise*
Chose PS institution for reputation	*Dummy; 1 if chose institution for reputation, 0 otherwise*
Chose PS institution for cost	*Dummy; 1 if chose institution for cost, 0 otherwise*
Postsecondary institution urbanicity (reference: rural)	
Urban	*Dummy; 1 if urban, 0 otherwise*
Suburban	*Dummy; 1 if suburban, 0 otherwise*

Table 25. Variable descriptions and coding (continued)

Postsecondary institution census region (reference: Northeast)	
South	*Dummy; 1 if South, 0 otherwise*
Midwest	*Dummy; 1 if Midwest, 0 otherwise*
West	*Dummy; 1 if West, 0 otherwise*
Land grant	*Dummy; 1 if land grant, 0 otherwise*
Graduate degree offerings	*Dummy; 1 if offers graduate programs, 0 otherwise*
Postsecondary Institution Control (reference: public)	
Private nonprofit	*Dummy; 1 if for profit, 0 otherwise*
For profit	*Dummy; 1 if private nonprofit, 0 otherwise*

APPENDIX B

DETAILS FOR VARIABLES IN CONDITIONING MODELS USING DATA FROM THE YOUTH-PARENT SOCIALIZATION PANEL STUDY

B.1 DESCRIPTIVE STATISTICS

Table 26. Descriptive statistics

Variable	N	Mean	SD	Min	Max
Watch politics TV with family	827	0.86	0.35	0	1
Discuss politics with friends	934	2.30	1.37	1	5
Spending money from parents	921	0.63	0.48	0	1
Cosmopolitan index	843	5.30	1.45	1	7
School political activities	930	3.05	1.66	0	5
Ideology index	915	2.77	1.63	1	5
Internal efficacy index	929	2.14	0.70	1	3
Opinion strength index	928	4.55	1.78	1	7
Self confidence index	924	4.91	1.70	1	7
Personal trust index	929	5.12	2.08	1	7
Political trust index	908	4.60	1.19	1	6
Political knowledge index	928	4.71	1.48	1	7
Civic tolerance index	928	2.78	0.90	1	4
Courses increased interest in politics	886	2.49	0.64	1	3
Listen to politics on radio	930	3.33	1.77	1	5
Read about politics in newspaper	931	3.97	1.37	1	5
Watch politics on TV	931	3.82	1.27	1	5
Read about politics in magazine	933	2.27	0.91	1	3
Discuss politics with family	934	3.09	0.95	1	4
Discuss politics with an adult	931	2.05	1.06	1	4

Table 26. Descriptive statistics (continued)

Plan to attend 4 year college	828	0.57	0.50	0	1
High school vocational curriculum	914	0.07	0.26	0	1
High school college prep curriculum	914	0.54	0.50	0	1
High school business curriculum	914	0.16	0.37	0	1
Non-white	935	0.08	0.28	0	1

B.2 VARIABLE DESCRIPTIONS AND CODING

Table 27. Variable descriptions and coding

Variable	Description
Watch TV with family	*Dummy: 1 if yes (0 otherwise)*
Discuss politics with friends	*Dummy: 1 if yes (0 otherwise)*
Spending money from parents	*Dummy: 1 if yes (0 otherwise)*
Cosmopolitan index	*Index combining the following questions:* *-How far did you father go in school?* *-How far did your mother go in school?* *-How many siblings do you have?* *-How old is your eldest brother?*
School political activities	*Index combining the following questions:* *-How frequently have you voted in school elections?* *-Why did you vote?* *-Did you ever run for elected office in school?* *-Have you helped other run for school office in the last 3 years?* *-Were you an officer in a school activity?*
Ideology index	*Index combining the following questions:* *-What are important differences between democrats and republicans?* *-Are democrats or republicans more conservative?* *-What do people have in mind when they say one party is more conservative than the other?*

Table 27. Variable descriptions and coding (continued)

Internal efficacy index	*Index combining the following questions:* *-Voting is the only way my parents can have a say in how the government runs things.* *-Sometimes politics and government seem so complicated that a person like me can't really understand what's going on.*
Opinion strength index	*Index combining the following questions:* *-When you get in an argument, do you usually get your own way or do you often give in?* *-Some people have strong opinions about a good many things. Other people are more in the middle of the road. Which kind of person are you?* *-When you make up your mind about something is it pretty hard to argue you out of it or do you change your mind pretty easily?*
Self confidence index	*Index combining the following questions:* *-Have you usually felt pretty sure your life would work out the way you want it to, or have there been times when you haven't been very sure about it?* *-Do you feel that you are the kind of person who gets his share of bad luck or do you feel that you have mostly ts good luck?* *-When you make plans ahead do you usually get to carry out things the way you expected, or do things usually come up to make you change your plans?*
Personal trust index	*Index combining the following questions:* *-Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?* *-Would you say that most of the time people try to helpful or that they are mostly just looking out for themselves?* *-Do you think most people would try to take advantage of you if they got a chance or would they try to be fair?*

Table 27. Variable descriptions and coding (continued)

Political trust index	*Index combining the following questions:* *-Do you think that quite a few of the people running the government are a little crooked, not very many are, or do you think hardly any of them are?* *-Do you think that people in the government waste a lot of the money we pay in taxes, waste some of it, or don't waste very much of it?* *-How much of the time do you think you can trust the government in Washington to do what is right - just about always, most of the time, or only some of the time?* *-Do you feel that almost all of the people running the government are smart people who usually know what they are doing, or do you think that quite a few of them don't seem to know what they are doing?* *-Would you say the government is pretty much run by few big interests looking out for themselves or that it is run for the benefit of all the people?*
Political knowledge index	*Index combining "yes" answers to the following questions:* *-How many years does a US senator serve?* *-Marshall Tito was a leader in what country?* *-How many members are on the US Supreme Court?* *-Who is the governor of this state?* *-During WWII, which nation had a great many concentration camps for Jews?* *-Was Franklin D Roosevelt a democrat or republican?*
Civic tolerance index	*Index combining the following questions:* *-If a person wanted to make a speec in the community against churches and religion, he should be allowed to speak.* *-If a communist were legally elected to some public office around here, the people should allow him to take office.*
Courses increased interest in politics	*Dummy: 1 if yes (0 otherwise)*
Listen to politics on radio	*Dummy: 1 if yes (0 otherwise)*
Read about politics in newspapper	*Dummy: 1 if yes (0 otherwise)*
Watch politics on TV	*Dummy: 1 if yes (0 otherwise)*
Read about politics in magazine	*Dummy: 1 if yes (0 otherwise)*
Discuss politics with family	*Dummy: 1 if yes (0 otherwise)*

Table 27. Variable descriptions and coding (continued)

Discuss politics with an adult	*Dummy: 1 if yes (0 otherwise)*
Plan to attend 4 year college	*Dummy: 1 if yes (0 otherwise)*
High school vocational curriculum	*Dummy: 1 if yes (0 otherwise)*
High school college prep curriculum	*Dummy: 1 if yes (0 otherwise)*
High school business curriculum	*Dummy: 1 if yes (0 otherwise)*
Non-white	*Dummy: 1 if yes (0 otherwise)*

APPENDIX C

ROBUSTNESS TESTS FOR PROPENSITY SCORE MATCHING MODELS USING DATA FROM THE EDUCATION LONGITUDINAL STUDY

C.1 EXTRACURRICULAR PARTICIPATION

Table 28. Robustness tests for extracurricular participation

Variable	**Nearest Neighbor with PS**				
	Treatment	*Control*	*ATT*	*SE*	*t*
Voting	3450	810	0.198	0.06	3.35
Community Engagement	3450	810	0.151	0.06	2.53
Volunteer work	3450	810	0.216	0.06	3.79
Philanthropy	3450	810	0.08	0.06	1.39
Social justice orientation	3450	800	0.065	0.1	0.66
Helping others	3450	800	0.074	0.06	1.26
Correcting inequality	3450	800	-0.012	0.06	-0.21

Variable	**Stratification with PS**				
	Treatment	*Control*	*ATT*	*SE*	*t*
Voting	3450	1760	0.16	0.04	3.7
Community Engagement	3450	1760	0.195	0.04	4.4
Volunteer work	3450	1760	0.276	0.04	6.42
Philanthropy	3450	1760	0.11	0.04	2.54
Social justice orientation	3450	1760	0.163	0.07	2.28
Helping others	3450	1760	0.104	0.04	2.43
Correcting inequality	3450	1760	0.056	0.04	1.38

Table 28. Robustness tests for extracurricular participation (continued)

Variable	**Inverse Probability Weights**			
	Treatment	*ATT*	*SE*	*p*
Voting	4440	0.179	0.05	0
Community Engagement	4430	0.177	0.05	0
Volunteer work	4450	0.257	0.05	0
Philanthropy	4430	0.097	0.05	0.04
Social justice orientation	4400	0.144	0.07	0.05
Helping others	4410	0.09	0.04	0.04
Correcting inequality	4410	0.05	0.04	0.23

Variable	**Nearest Neighbor Direct Matching**			
	Treatment	*ATT*	*SE*	*p*
Voting	4440	0.19	0.05	0
Community Engagement	4430	0.27	0.05	0
Volunteer work	4450	0.337	0.05	0
Philanthropy	4430	0.168	0.05	0.001
Social justice orientation	4400	0.308	0.08	0
Helping others	4410	0.195	0.05	0
Correcting inequality	4410	0.105	0.05	0.027

C.2 PRIVATE INSTITUTION ATTENDANCE

Table 29. Robustness tests for private institution attendance

Variable	**Nearest Neighbor with PS**				
	Treatment	*Control*	*ATT*	*SE*	*t*
Voting	810	450	0.026	0.07	0.4
Community Engagement	810	440	0.084	0.07	1.24
Volunteer work	810	450	0.117	0.07	1.76
Philanthropy	810	440	0.049	0.07	0.72
Social justice orientation	810	440	0.012	0.12	0.11

Table 29. Robustness tests for private institution attendance (continued)

Helping others	810	440	0.053	0.07	0.80
Correcting inequality	810	440	-0.045	0.07	-0.66

Variable	**Stratification with PS**				
	Treatment	*Control*	*ATT*	*SE*	*t*
Voting	810	2270	0.035	0.05	0.77
Community Engagement	810	2270	0.152	0.05	2.12
Volunteer work	810	2270	0.149	0.05	3.07
Philanthropy	810	2270	0.005	0.05	0.10
Social justice orientation	810	2270	0.007	0.08	0.08
Helping others	810	2270	0.072	0.05	1.52
Correcting inequality	810	2270	-0.063	0.05	-1.37

Variable	**Inverse Probability Weights**			
	Treatment	*ATT*	*SE*	*p*
Voting	2560	0.036	0.05	0.465
Community Engagement	2550	0.078	0.05	0.143
Volunteer work	2570	0.172	0.05	0.001
Philanthropy	2550	0.051	0.05	0.701
Social justice orientation	2540	0.019	0.09	0.821
Helping others	2550	0.083	0.05	0.111
Correcting inequality	2550	-0.063	0.05	0.218

Variable	**Nearest Neighbor Direct Matching**			
	Treatment	*ATT*	*SE*	*p*
Voting	2560	0.073	0.063	0.248
Community Engagement	2550	0.031	0.06	0.616
Volunteer work	2570	0.161	0.07	0.014
Philanthropy	2550	-0.027	0.06	0.673
Social justice orientation	2540	0.07	0.11	0.504
Helping others	2550	0.088	0.06	0.169
Correcting inequality	2550	-0.008	0.06	0.894

APPENDIX D

ROBUSTNESS TESTS FOR PROPENSITY SCORE MATCHING MODELS USING DATA FROM THE YOUTH-PARENT SOCIALIZATION PANEL STUDY

D.1 BELIEFS CHALLENGED IN COLLEGE

Table 30. Robustness tests for beliefs challenged in college

Variable	Nearest Neighbor with PS				
	Treatment	Control	ATT	SE	t
Activity Index	144	79	0.261	0.163	1.601
Civic Tolerance Index	144	78	0.072	0.142	0.508
Political Knowledge	144	77	0.235	0.135	1.737
Variable	Stratification with PS				
	Treatment	Control	ATT	SE	t
Activity Index	144	348	0.389	0.13	3.042
Civic Tolerance Index	144	348	0.204	0.11	1.888
Political Knowledge	144	348	0.341	0.14	2.427
Variable	Inverse Probability Weights				
	Treatment	ATT	SE	p	
Activity Index	325	0.33	0.118	0.005	
Civic Tolerance Index	319	0.128	0.101	0.208	
Political Knowledge	317	0.25	0.119	0.036	

Table 30. Robustness tests for beliefs challenged in college (continued)

Variable	Nearest Neighbor Direct Matching			
	Treatment	ATT	SE	p
Activity Index	325	0.307	0.171	0.07
Civic Tolerance Index	319	0.076	0.14	0.586
Political Knowledge	317	0.189	0.107	0.077

D.2 SOCIAL SCIENCE COURSE TAKING

Table 31. Robustness tests for social science course taking

Variable	**Nearest Neighbor with PS**				
	Treatment	*Control*	*ATT*	*SE*	*t*
Activity Index	193	78	0.167	0.156	1.067
Civic Tolerance Index	193	77	0.023	0.131	0.172
Political Knowledge	193	77	-0.014	0.142	-0.101
Variable	Stratification with PS				
	Treatment	*Control*	*ATT*	*SE*	*t*
Activity Index	144	348	0.389	0.13	3.042
Civic Tolerance Index	144	348	0.204	0.11	1.888
Political Knowledge	144	348	0.341	0.14	2.427
Variable	**Inverse Probability Weights**				
	Treatment	*ATT*	*SE*	*p*	
Activity Index	347	0.049	0.135	0.715	
Civic Tolerance Index	340	0.126	0.105	0.23	
Political Knowledge	338	-0.019	0.083	0.817	

Table 31. Robustness tests for social science course taking (continued)

Variable	**Nearest Neighbor Direct Matching**			
	Treatment	*ATT*	*SE*	*p*
Activity Index	347	0.032	0.185	0.862
Civic Tolerance Index	340	0.221	0.119	0.065
Political Knowledge	338	0.03	0.122	0.803

D.3 BACHELOR'S DEGREE

Table 32. Robustness tests for bachelor's degree

Variable	**Nearest Neighbor with PS**				
	Treatment	*Control*	*ATT*	*SE*	*t*
Activity Index	209	90	0.051	0.173	0.296
Civic Tolerance Index	209	89	0.174	0.165	1.057
Political Knowledge	209	86	0.046	0.168	0.271

Variable	**Stratification with PS**				
	Treatment	*Control*	*ATT*	*SE*	*t*
Activity Index	209	268	0.064	0.17	0.381
Civic Tolerance Index	209	268	0.077	0.07	1.041
Political Knowledge	209	268	-0.008	0.08	-0.095

Variable	**Inverse Probability Weights**			
	Treatment	*ATT*	*SE*	*p*
Activity Index	569	0.133	0.134	0.322
Civic Tolerance Index	556	0.128	0.09	0.153
Political Knowledge	548	0.031	0.087	0.722

Table 32. Robustness tests for bachelor's degree (continued)

Variable	**Nearest Neighbor Direct Matching**			
	Treatment	*ATT*	*SE*	*p*
Activity Index	569	0.073	0.17	0.668
Civic Tolerance Index	556	0.11	0.117	0.344
Political Knowledge	548	-0.003	0.117	0.983

APPENDIX E

CROSSWALK BETWEEN YPSPS AND ELS DEPENDENT VARIABLES

Table 33. Crosswalk between YPSPS and ELS variables

ELS Variable	YPSPS Variable
Voting	Political Activity Scale
Community Engagement Scale	Political Activity Scale
Volunteer work	Political Activity Scale
Philanthropy	N/A
Social Justice Orientation Scale	Civic Tolerance Scale
Helping others	Civic Tolerance Scale
Correcting inequality	Civic Tolerance Scale
N/A	Political Knowledge Scale

APPENDIX F

POST-MATCHING BALANCING TESTS

Table 34. Post-matching balancing test for extracurricular model

	BLOCK 1			BLOCK 2			BLOCK 3		
	Cont.	Treat.	t	Cont.	Treat.	t	Cont.	Treat.	t
Discuss Current Events With Parents	1.64	1.84	-1.69	0.18	0.17	0.89	1.98	2.04	-1.42
Family SES Quartile	1.98	2.04	-0.43	2.39	2.33	0.61	2.70	2.71	-0.16
Homework hours*	3.21	3.09	0.58	3.64	3.78	-1.12	4.23	4.08	1.36
Belong to parent-teacher organization	0.13	0.16	-0.61	0.18	0.16	0.38	0.25	0.26	-0.11
Parents limit TV and video games	1.88	1.86	0.14	1.98	1.99	-0.15	2.26	2.17	1.31
Discuss school courses with parents	1.72	2.00	-2.59	1.93	2.04	-1.97	2.09	2.16	-1.34
Latino	0.35	0.28	0.82	0.22	0.17	1.36	0.11	0.10	0.49
African American	0.15	0.12	0.58	0.12	0.08	1.27	0.09	0.12	-1.12
AAPI	0.08	0.12	-0.63	0.06	0.09	-1.30	0.11	0.07	1.82
Other	0.02	0.00	1.03	0.03	0.04	-1.06	0.04	0.05	-0.55
Importance of helping others in community	1.98	1.98	-0.01	2.19	2.16	0.66	2.34	2.28	1.67
Degree Aspirations	1.58	1.35	-0.01	1.94	1.86	1.07	2.29	2.32	-0.53
South	0.30	0.28	1.90	0.32	0.30	0.46	0.35	0.38	-0.82
Midwest	0.21	0.30	0.30	0.27	0.26	0.38	0.27	0.27	0.16

Table 34. Post-matching balancing test for extracurricular model (continued)

West	0.25	0.26	-1.25	0.23	0.28	-1.22	0.20	0.18	1.07
Participation in extracurriculars in high school	0.22	0.26	-0.02	0.70	0.72	-0.35	0.85	0.86	-0.57
High School GPA	1.71	1.84	-0.44	2.12	2.10	0.36	2.41	2.39	0.40
South	0.31	0.28	-1.39	0.32	0.28	1.12	0.36	0.38	-0.76
Midwest	0.26	0.28	0.38	0.24	0.30	-1.48	0.20	0.17	1.25
West	0.21	0.28	-0.24	0.27	0.28	-0.16	0.28	0.27	0.36
Private non-profit	0.00	0.00	.	0.01	0.01	-0.61	0.04	0.06	-1.48
Private for-profit	0.22	0.23	-0.12	0.10	0.11	-0.64	0.04	0.03	0.84
Whether institution offers graduate programs	0.12	0.00	0.72	0.08	0.10	-0.94	0.31	0.35	-1.39
Urban	0.52	0.49	0.31	0.46	0.44	0.36	0.48	0.47	0.27
Suburban	0.28	0.19	1.23	0.34	0.36	-0.56	0.38	0.40	-0.72
Whether institution is landgrant	0.00	0.00	.	0.00	0.01	-1.61	0.03	0.03	0.58

	BLOCK 4			BLOCK 5			BLOCK 6		
	Cont.	Treat.	t	Cont.	Treat.	t	Cont.	Treat.	t
Discuss Current Events With Parents	2.11	2.05	1.22	2.09	2.12	-0.64	2.29	2.25	0.71
Family SES Quartile	2.84	2.95	-1.25	3.16	3.12	0.48	3.34	3.39	-0.87
Homework hours*	4.31	4.36	-0.30	2.60	4.54	0.38	4.90	5.12	-1.59
Belong to parent-teacher organization	0.25	0.30	-1.24	0.37	0.33	1.07	0.40	0.45	-1.15
Parents limit TV and video games	2.10	2.27	-1.85	2.42	2.35	0.85	2.43	2.44	-0.11
Discuss school courses with parents	2.20	2.12	1.48	2.31	2.22	1.82	2.38	2.36	0.29
Latino	0.09	0.07	0.82	0.04	0.08	-2.09	0.04	0.06	-1.26
African American	0.09	0.11	-0.58	0.08	0.08	0.30	0.07	0.06	0.23
AAPI	0.08	0.08	-0.02	0.11	0.09	0.74	0.09	0.13	-1.16
Other	0.02	0.04	-1.09	0.04	0.04	-0.50	0.06	0.04	1.26

Table 34. Post-matching balancing test for extracurricular model (continued)

Importance of helping others in community	2.36	2.26	2.11	2.26	2.34	-1.75	2.40	2.50	-1.67
Degree Aspirations	2.54	2.50	0.48	2.72	2.81	-1.55	2.96	3.05	-1.50
South	0.36	0.33	0.77	0.37	0.34	0.76	0.33	0.37	-0.99
Midwest	0.26	0.28	-0.49	0.29	0.29	-0.21	0.28	0.27	0.32
West	0.22	0.19	0.81	0.17	0.18	-0.39	0.18	0.16	0.85
Participation in extracurriculars in high school	0.94	0.93	0.36	0.96	0.97	-0.92	0.98	1.00	-2.86
High School GPA	2.62	2.60	0.42	2.75	2.74	0.42	2.83	2.90	-1.93
South	0.36	0.35	0.23	0.37	0.35	0.56	0.32	0.38	-1.42
Midwest	0.21	0.19	0.38	0.17	0.17	-0.20	0.17	0.15	0.71
West	0.27	0.27	0.01	0.29	0.30	-0.12	0.29	0.27	0.67
Private non-profit	0.06	0.11	-2.09	0.19	0.18	0.10	0.42	0.38	1.23
Private for-profit	0.01	0.01	0.53	0.01	0.00	2.46	0.00	0.00	-0.41
Whether institution offers graduate programs	0.74	0.71	0.75	0.90	0.88	0.81	0.96	0.93	1.59
Urban	0.54	0.56	-0.55	0.57	0.58	-0.29	0.63	0.60	0.80
Suburban	0.37	0.37	-0.01	0.39	0.39	-0.15	0.36	0.36	-0.21
Whether institution is landgrant	0.10	0.09	0.07	0.16	0.16	-0.19	0.30	0.29	0.19

BLOCK 7

	Control	Treatment	t
Discuss Current Events With Parents	2.43	2.46	-0.31
Family SES Quartile	3.71	3.64	0.70
Homework hours*	6.00	6.09	-0.33
Belong to parent-teacher organization	0.63	0.55	0.95
Parents limit TV and video games	2.50	2.78	-1.73

Table 34. Post-matching balancing test for extracurricular model (continued)

Discuss school courses with parents	2.56	2.60	-0.52
Latino	0.04	0.03	0.51
African American	0.06	0.05	0.38
AAPI	0.13	0.16	-0.62
Other	0.10	0.06	1.37
Importance of helping others in community	2.50	2.70	-3.19
Degree Aspirations	3.40	3.42	-0.28
South	0.27	0.29	-0.28
Midwest	0.31	0.28	0.47
West	0.10	0.17	-1.15
Participation in extracurriculars in high school	1.00	1.00	.
High School GPA	2.95	3.04	-1.52
South	0.38	0.35	0.41
Midwest	0.13	0.14	-0.30
West	0.21	0.26	-0.83
Private non-profit	0.77	0.77	0.08
Private for-profit	0.00	0.00	.
Whether institution offers graduate programs	1.00	0.98	1.05
Urban	0.54	0.65	-1.57
Suburban	0.44	0.34	1.44
Whether institution is landgrant	0.21	0.21	0.02

Table 35. Post-matching balancing tests for private institution model

	BLOCK 1			BLOCK 2			BLOCK 3		
	Control	Treatment	t	Control	Treatment	t	Control	Treatment	t
SES quartile	0.24	2.08	1.2	2.67	2.73	-0.3	2.87	2.93	-0.51
Homework hours	3.73	4.23	-1.27	4.14	3.63	1.71	4.52	4.52	0
Belong to parent-teacher organization	0.2	0.23	-0.25	0.27	0.27	-0.02	0.31	0.28	0.48
Parents limit TV and video games	2.13	2.23	-0.32	2.22	2.2	0.09	2.18	2.67	-0.67
Parental education: 2 year degree	0.13	0.08	0.58	0.11	0.13	-0.41	0.08	0.07	0.4
Parental education: 4 year degree	0.22	0.15	0.58	0.27	0.2	0.85	0.34	0.33	0.17
Parental education: Graduate degree	0.08	0.15	-0.91	0.12	0.17	-0.83	0.18	0.16	0.37
More than 50 books in home	0.77	0.92	-1.27	0.86	0.8	0.88	0.89	0.88	0.26
Discussion of school with parents index	1.93	1.77	0.97	1.95	1.9	0.47	2.08	2.15	-0.92
Latino/a	0.15	0	1.52	0.07	0.03	0.77	0.09	0.08	0.39
African American	0.12	0.15	-0.36	0.17	0.1	0.62	0.09	0.12	-0.9
Asian and Pacific Islander	0.07	0.15	-1.13	0.06	0.03	0.67	0.07	0.09	-0.73
Other	0.03	0	0.59	0.05	0.13	-1.84	0.05	0.07	-0.78
High school extracurricular participation	0.74	0.69	0.42	0.87	0.97	-1.59	0.93	0.89	1.13
High school GPA	2.25	2.15	0.52	2.44	2.5	-0.48	2.62	2.61	0.16
Highest high school math course taken	4.96	4.85	0.38	5.21	5.4	-1.1	5.6	5.56	0.44
South	0.49	0.31	1.27	0.45	0.53	-0.9	0.4	0.47	-1.07
Midwest	0.37	0.53	-2.16	0.3	0.27	0.35	0.3	0.35	-0.86
West	0.16	0	1.58	0.17	0.13	0.46	0.16	0.11	1.23
High school academic climate	-0.03	-0.04	0.28	0	0.01	-0.7	0.02	0.03	-0.43

Table 35. Post-matching balancing tests for private institution model (continued)

Degree aspirations	2.09	1.77	1.3	2.26	2.67	-2.5	2.56	2.68	-1.11
Importance of getting a good education	2.9	2.92	-0.25	2.9	2.97	-1.1	2.96	2.95	0.54
Importance of being successful in line of work	2.96	2.92	0.72	2.9	2.97	-0.97	2.96	2.96	0.36
2 year degree needed for future work	0.18	0.23	-0.48	0.16	0.07	1.36	0.07	0.12	-1.37
4 year degree needed for future work	0.44	0.46	-0.15	0.48	0.43	0.51	0.44	0.35	1.45
Master's degree needed for future work	0.19	0.23	-0.39	0.18	0.27	-1.23	0.26	0.29	-0.58
Doctorate/Advanced Prof. needed for future work	0.11	0	1.29	0.15	0.23	-1.25	0.2	0.2	0.03
Highest PS institutional selectivity (applied)	1.98	2.15	-0.57	2.59	2.83	-1.17	3.12	3.2	-0.66
Highest PS institutional selectivity (accepted)	1.64	1.77	-0.5	2.32	2.67	-1.71	2.92	3.07	-1.21
Applied for financial aid	0.61	0.77	-1.16	0.71	0.8	-1.02	0.79	0.73	1.16
Chose PS institution for program	0.46	0.23	1.65	0.5	0.33	1.8	0.59	0.59	0
Chose PS institution for reputation	0.21	0.31	-0.83	0.38	0.3	0.9	0.45	0.61	-2.63
Chose PS institution for cost	0.81	0.92	-1.01	0.72	0.87	-1.75	0.64	0.63	0.3

	BLOCK 4			BLOCK 5			BLOCK 6		
	Control	Treatment	t	Control	Treatment	t	Control	Treatment	t
SES quartile	3.18	3.12	0.59	3.25	3.17	0.75	3.42	3.52	-1.31
Homework hours	4.74	4.76	-0.13	4.98	5.01	-0.12	5.31	5.31	0
Belong to parent-teacher organization	0.37	0.3	1.32	0.46	0.43	0.51	0.42	0.46	-0.97

Table 35. Post-matching balancing tests for private institution model (continued)

Parents limit TV and video games	2.33	2.41	-0.74	2.53	2.22	3.89	2.45	2.55	1.13
Parental education: 2 year degree	0.09	0.08	0.4	0.09	0.13	-1.22	0.07	0.07	-0.17
Parental education: 4 year degree	0.33	0.33	-0.09	0.32	0.25	1.52	0.24	0.3	-1.49
Parental education: Graduate degree	0.29	0.26	0.51	0.34	0.36	-0.44	0.5	0.5	-0.09
More than 50 books in home	0.94	0.94	0.07	0.96	0.96	-0.34	0.98	0.99	-0.38
Discussion of school with parents index	2.16	2.13	0.65	2.27	2.15	2.04	2.19	2.3	-2.48
Latino/a	0.05	0.08	-0.97	0.08	0.07	0.36	0.04	0.05	-0.42
African American	0.08	0.08	-0.04	0.08	0.06	0.22	0.06	0.06	0
Asian and Pacific Islander	0.12	0.1	0.67	0.08	0.09	-0.37	0.1	0.07	1.09
Other	0.04	0.04	-0.11	0.03	0.04	-0.6	0.04	0.02	1.31
High school extracurricular participation	0.95	0.98	-1.4	0.98	0.98	0.42	0.98	0.98	0.3
High school GPA	2.75	2.75	0.06	2.78	2.82	-0.84	2.85	2.85	-0.09
Highest high school math course taken	5.71	5.78	-1.26	5.8	5.78	0.22	5.89	5.87	0.54
South	0.33	0.3	0.57	0.33	0.28	1.14	0.21	0.23	-0.63
Midwest	0.3	0.33	-0.72	0.32	0.32	-0.12	0.38	0.32	1.38
West	0.18	0.16	0.58	0.12	0.17	-1.28	0.11	0.12	-0.27
High school academic climate	0.04	0.04	0.34	0.07	0.07	-0.19	0.08	0.08	0.03
Degree aspirations	2.89	2.77	1.4	3.02	3.04	-0.1	3.15	3.14	0.18
Importance of getting a good education	2.93	2.98	-1.96	2.96	2.94	1.26	2.97	2.96	0.41
Importance of being successful in line of work	2.94	2.93	0.5	2.95	2.94	0.4	2.91	2.92	-0.29

Table 35. Post-matching balancing tests for private institution model (continued)

2 year degree needed for future work	0.03	0.05	-1.08	0.05	0.01	2.12	0.02	0.01	0.38
4 year degree needed for future work	0.37	0.4	-0.59	0.34	0.36	-0.44	0.3	0.31	-0.28
Master's degree needed for future work	0.32	0.26	1.23	0.32	0.29	0.46	0.37	0.38	-0.27
Doctorate/Advanced Prof. needed for future work	0.25	0.25	-0.07	0.29	0.33	-0.76	0.3	0.29	0.38
Highest PS institutional selectivity (applied)	3.52	3.49	0.37	3.61	3.61	0.12	3.82	3.8	0.52
Highest PS institutional selectivity (accepted)	3.42	3.33	1.12	3.55	3.53	0.29	3.79	3.75	0.77
Applied for financial aid	0.82	0.86	-1.02	0.84	0.84	0.04	0.85	0.85	0
Chose PS institution for program	0.61	0.62	-0.32	0.69	0.76	-1.6	0.75	0.77	-0.61
Chose PS institution for reputation	0.6	0.5	1.87	0.73	0.78	-1.11	0.86	0.82	1.2
Chose PS institution for cost	0.59	0.54	0.89	0.44	0.48	-0.82	0.28	0.23	1.31

	BLOCK 7			BLOCK 8		
	Control	Treatment	t	Control	Treatment	t
SES quartile	3.66	3.79	-1.66	4	3.92	0.47
Homework hours	5.64	5.88	-0.87	6	7.38	-1.45
Belong to parent-teacher organization	0.52	0.65	-1.71	0.67	0.69	-0.08
Parents limit TV and video games	2.79	2.7	0.6	3	2.77	0.38
Parental education: 2 year degree	0.08	0.02	2	0	0	.
Parental education: 4 year degree	0.13	0.22	-1.53	0	0	.
Parental education: Graduate degree	0.67	0.67	0.08	1	0.92	0.47

Table 35. Post-matching balancing tests for private institution model (continued)

More than 50 books in home	1	0.99	0.66	1	1	.
Discussion of school with parents index	2.39	2.38	0.15	2	2.54	-1.63
Latino/a	0.03	0.09	-1.38	0	0	.
African American	0.05	0.01	1.95	0	0.15	-0.69
Asian and Pacific Islander	0.08	0.15	-1.23	0	0.08	-0.47
Other	0.1	0.06	1.02	0	0	.
High school extracurricular participation	1	1	.	1	1	.
High school GPA	2.89	2.93	-0.8	3.67	2.92	2.29
Highest high school math course taken	5.97	5.97	-0.14	6	5.92	0.47
South	0.1	0.09	0.26	0	0	.
Midwest	0.36	0.25	1.54	0.33	0.08	1.18
West	0.07	0.17	-2.03	0	0	.
High school academic climate	0.13	0.12	0.33	0.09	0.17	-1.4
Degree aspirations	3.36	3.38	-0.15	3.67	3.53	0.38
Importance of getting a good education	3	2.95	1.8	3	2.92	0.47
Importance of being successful in line of work	2.93	2.91	0.51	2.33	2.84	-1.95
2 year degree needed for future work	0	0	.	0	0	.
4 year degree needed for future work	0.28	0.29	-0.16	0.33	0.23	0.34

Table 35. Post-matching balancing tests for private institution model (continued)

Master's degree needed for future work	0.31	0.32	-0.1	0.33	0.23	0.35
Doctorate/Advanced Prof. needed for future work	0.41	0.39	0.25	0.33	0.53	-0.61
Highest PS institutional selectivity (applied)	3.95	3.94	0.25	4	4	.
Highest PS institutional selectivity (accepted)	3.93	3.94	-0.21	4	4	.
Applied for financial aid	0.97	0.91	1.51	1	1	.
Chose PS institution for program	0.84	0.81	0.41	1	0.925	0.47
Chose PS institution for reputation	0.97	0.95	0.56	1	1	.
Chose PS institution for cost	0.05	0.05	-0.05	0	0	.

Table 36. Post-matching balancing tests for beliefs challenged model

	BLOCK 1			BLOCK 2			BLOCK 3		
	Cont.	Treat.	t	Cont.	Treat.	t	Cont.	Treat.	t
Watch politics TV with family	0.92	0.83	0.57	0.89	0.94	-0.88	0.92	0.78	2.00
Discuss politics with friends	2.15	2.17	-0.02	2.51	2.50	0.03	2.13	1.97	0.83
Plans to continue school after HS	1.00	1.00	.	1.00	0.97	1.34	0.97	0.98	-0.24
Spending money from parents	0.77	0.83	-0.30	0.58	0.58	0.01	0.72	0.78	-0.67
Cosmopolitan index	5.00	3.67	1.62	5.32	5.47	-0.48	5.54	5.54	0.02
School political activities	2.23	3.16	-1.00	2.96	2.94	0.07	3.38	3.41	-0.12
Ideology index	1.92	2.00	-0.12	2.72	2.89	-0.51	3.28	3.00	0.83
Internal efficacy index	1.92	1.50	1.39	1.95	2.06	-0.75	2.39	2.41	-0.17
Opinion strength index	4.54	5.83	-1.18	4.58	4.72	-0.41	4.97	4.98	-0.02
Self confidence index	4.92	4.33	0.60	4.83	5.22	-1.06	5.26	5.24	0.06
Personal trust index	4.61	4.00	0.59	5.13	5.16	-0.06	5.54	5.78	-0.65
Political trust index	4.61	5.00	-0.70	4.63	4.58	0.19	4.84	5.02	-1.01
Political knowledge index	3.92	4.17	-0.55	4.82	4.92	-0.40	5.36	5.39	-0.11
Civic tolerance index	2.46	1.83	1.65	2.68	2.94	-1.68	3.20	3.15	0.31
Courses increased interest in politics	2.31	2.00	0.87	2.52	2.61	-0.76	2.56	2.51	0.37
Listen to politics on radio	3.69	3.33	0.39	3.09	3.67	-1.54	3.48	2.88	1.62
Read about politics in newspaper	4.00	3.33	0.87	4.00	4.25	-0.96	4.39	4.24	0.67
Watch politics on TV	4.31	4.33	-0.06	4.21	4.33	-0.72	4.15	3.93	1.27

Table 36. Post-matching balancing tests for beliefs challenged model (continued)

Read about politics in magazine	2.23	1.33	1.90	2.28	2.44	-0.90	2.61	2.54	0.44
Discuss politics with family	3.46	2.67	2.27	2.72	3.19	-2.40	3.44	3.02	2.34
Discuss politics with an adult	1.92	1.50	0.82	1.60	1.69	-0.49	2.08	2.10	-0.07
Plan to attend 4 year college	0.54	0.50	0.15	0.55	0.67	-1.10	0.80	0.82	-0.33
High school vocational curriculum	0.00	0.00	.	0.02	0.03	-0.42	0.03	0.04	-0.40
High school college prep curriculum	0.54	0.83	-1.22	0.75	0.78	-0.27	0.87	0.83	0.55
High school business curriculum	0.39	0.17	0.92	0.05	0.06	-0.21	0.00	0.00	.
Non-white	0.38	0.17	0.92	0.05	0.08	-0.75	0.03	0.05	-0.40

Table 36. Post-matching balancing tests for beliefs challenged model (continued)

	BLOCK 4			BLOCK 5		
	Control	Treatment	t	Control	Treatment	t
Watch politics TV with family	0.71	0.87	-1.62	1.00	0.83	0.55
Discuss politics with friends	1.53	1.80	-1.03	2.50	1.33	1.79
Plans to continue school after HS	0.94	0.96	-0.40	1.00	1.00	.
Spending money from parents	0.76	0.75	0.16	1.00	1.00	.
Cosmopolitan index	5.47	5.93	-1.44	5.00	6.50	-1.46
School political activities	4.05	3.93	0.34	5.00	4.17	1.49
Ideology index	3.18	3.71	-1.23	5.00	4.50	0.55
Internal efficacy index	2.64	2.76	-0.95	3.00	2.67	0.87
Opinion strength index	4.41	3.95	0.83	3.00	3.17	-0.14
Self confidence index	5.18	5.00	0.37	6.00	4.50	1.22
Personal trust index	5.12	5.16	-0.08	4.00	2.00	2.12
Political trust index	4.71	4.53	0.52	4.00	4.50	-0.55
Political knowledge index	5.82	5.78	0.14	6.00	5.83	0.30
Civic tolerance index	3.24	3.27	-0.19	3.00	3.33	-0.43
Courses increased interest in politics	2.41	2.56	-0.81	2.50	2.67	-0.37
Listen to politics on radio	3.76	3.40	0.80	1.00	3.50	-1.70
Read about politics in newspaper	3.82	4.16	-0.94	4.50	4.17	0.27
Watch politics on TV	4.00	4.00	0.00	3.50	3.83	-0.87

Table 36. Post-matching balancing tests for beliefs challenged model (continued)

Read about politics in magazine	2.35	2.78	-2.39	3.00	2.50	0.80
Discuss politics with family	3.29	3.53	-1.09	3.00	3.67	-1.73
Discuss politics with an adult	2.58	2.54	0.17	3.00	3.17	-0.55
Plan to attend 4 year college	0.88	0.84	0.45	1.00	1.00	.
High school vocational curriculum	0.06	0.02	0.88	0.00	0.00	.
High school college prep curriculum	0.82	0.78	0.37	1.00	1.00	.
High school business curriculum	0.00	0.02	-0.55	0.00	0.00	.
Non-white	0.00	0.00	.	0.00	0.00	.

Table 37. Post-matching balancing tests for social science courses model

	BLOCK 1			BLOCK 2			BLOCK 3		
	Control	Treatment	t	Control	Treatment	t	Control	Treatment	t
Watch politics TV with family	0.80	1.00	-0.75	0.88	1.00	.	0.89	1.00	.
Discuss politics with friends	1.80	1.67	0.24	2.38	5.00	.	2.89	2.00	.
Spending money from parents	0.40	0.67	-0.65	0.69	1.00	.	0.89	1.00	.
Ideology index	1.80	1.33	0.57	2.44	1.00	.	2.67	1.00	.
Internal efficacy index	1.80	2.00	-0.40	2.18	2.00	.	1.55	2.00	.
Self confidence index	4.20	4.67	-0.26	5.13	1.00	.	4.67	7.00	.
Personal trust index	5.60	5.67	-0.04	5.13	3.00	.	5.22	5.00	.
Political trust index	4.20	4.67	-0.46	4.75	4.00	.	5.22	6.00	.
Political knowledge index	3.60	4.33	-1.25	3.74	3.00	.	3.89	3.00	.
Civic tolerance index	2.40	2.00	1.22	2.88	2.00	.	2.33	3.00	.
Courses increased interest in politics	3.00	2.00	2.37	2.50	2.00	.	2.44	3.00	.
Listen to politics on radio	4.20	3.33	0.74	2.69	1.00	.	2.67	5.00	.
Read about politics in newspaper	5.00	3.33	0.19	4.25	4.00	.	4.56	4.00	.
Watch politics on TV	4.20	4.67	-0.84	4.00	4.00	.	3.89	4.00	.
Read about politics in magazine	2.60	1.67	1.30	2.25	1.00	.	2.44	3.00	.
Discuss politics with family	3.40	3.67	-0.65	2.94	2.00	.	2.67	4.00	.
Discuss politics with an adult	2.40	1.00	1.75	1.75	1.00	.	1.89	3.00	.
Plan to attend 4 year college	0.00	0.67	-2.74	0.50	0.00	.	0.67	1.00	.
High school vocational curriculum	0.20	0.00	0.75	0.06	0.00	.	0.11	1.00	.

Table 37. Post-matching balancing tests for social science courses model (continued)

High school college prep curriculum	0.00	0.00	.	0.06	0.00	.	0.44	0.00	.
High school business curriculum	0.80	1.00	-0.75	0.50	0.00	.	0.00	0.00	.
Non-white	0.20	0.00	0.75	0.13	0.00	.	0.00	0.00	.
	BLOCK 4			BLOCK 5			BLOCK 6		
	Cont.	Treat.	t	Cont.	Treat.	t	Cont.	Treat.	t
Watch politics TV with family	0.89	0.91	-0.14	0.86	0.87	-0.09	0.88	0.87	0.21
Discuss politics with friends	3.22	2.18	1.70	2.65	2.30	1.45	1.53	1.91	-2.02
Plans to continue school after HS	0.67	0.73	-0.28	0.63	0.66	-0.29	0.72	0.73	-0.14
Spending money from parents	2.11	2.36	-0.33	2.79	2.52	0.95	3.24	3.72	-1.80
Cosmopolitan index	2.11	1.73	1.36	2.14	2.15	-0.07	2.39	2.51	-1.19
School political activities	5.00	4.45	0.77	4.70	4.87	-0.51	5.34	5.50	0.15
Ideology index	5.89	5.36	0.51	4.82	5.07	-0.68	5.70	5.48	0.62
Internal efficacy index	5.33	4.64	1.62	4.91	4.61	1.47	4.49	4.71	-1.12
Opinion strength index	4.67	4.63	0.06	4.63	4.79	-0.79	5.98	5.86	0.64
Self confidence index	2.33	2.64	-0.81	2.82	2.74	0.55	3.21	3.36	-1.07
Personal trust index	1.78	2.27	-1.50	2.54	2.52	0.20	2.58	2.63	-0.50
Political trust index	2.67	2.55	0.15	3.28	3.06	0.68	3.42	3.64	-0.70
Political knowledge index	3.89	4.00	-0.15	3.93	4.13	-0.87	4.19	4.17	0.08

Table 37. Post-matching balancing tests for the social science courses model (continued)

Civic tolerance index	3.67	3.55	0.26	4.07	4.18	-0.71	4.28	4.28	0.01
Read about politics in magazine	2.44	2.81	-1.12	2.46	2.31	0.92	2.42	2.57	-1.09
Discuss politics with family	3.00	2.45	1.03	2.81	2.96	-0.83	3.51	3.53	-0.20
Discuss politics with an adult	2.00	1.91	0.20	2.02	1.93	0.51	2.00	2.11	-0.55
Plan to attend 4 year college	0.78	0.55	0.11	0.68	0.69	-0.03	0.77	0.78	-0.19
High school vocational curriculum	0.11	0.09	0.14	0.00	0.01	-0.92	0.02	0.00	1.54
High school college prep curriculum	0.44	0.55	-0.42	0.82	0.79	0.47	0.95	0.96	-0.19
High school business curriculum	0.00	0.09	-0.90	0.00	0.01	-0.92	0.00	0.00	.
Non-white	0.00	0.18	-1.34	0.11	0.07	0.59	0.05	0.07	-0.51

	BLOCK 7		
	Cont.	Treat.	t
Watch politics TV with family	1.00	1.00	.
Discuss politics with friends	1.33	1.78	-1.41
Spending money from parents	1.00	0.89	0.56
Ideology index	3.67	4.67	-1.33
Internal efficacy index	2.67	2.78	-0.35
Self confidence index	5.67	5.89	-0.24
Personal trust index	6.30	5.00	0.89
Political trust index	4.00	4.00	0.00
Political knowledge index	7.00	6.67	1.12
Civic tolerance index	3.33	3.56	-0.48
Courses increased interest in politics	2.67	2.78	-0.35

Table 37. Post-matching balancing tests for the social science courses model (continued)

Listen to politics on radio	4.67	4.67	0.00
Read about politics in newspaper	4.67	4.78	-0.35
Watch politics on TV	5.00	4.67	0.79
Read about politics in magazine	2.33	2.67	-0.61
Discuss politics with family	4.00	3.44	1.77
Discuss politics with an adult	1.00	2.11	-2.01
Plan to attend 4 year college	0.67	0.78	-0.35
High school vocational curriculum	0.00	0.00	.
High school college prep curriculum	1.00	1.00	.
High school business curriculum	0.00	0.00	.
Non-white	0.00	0.22	-0.85

Table 38. Post-matching balancing tests for bachelor's degree model

	BLOCK 1			BLOCK 2			BLOCK 3		
	Cont.	Treat.	t	Cont.	Treat.	t	Cont.	Treat.	t
Watch politics TV with family	0.88	0.87	0.10	0.92	0.83	0.58	0.78	0.68	0.71
Discuss politics with friends	2.42	1.93	1.33	2.71	1.83	1.31	2.30	2.16	0.35
Spending money from parents	0.52	0.73	-1.56	0.74	0.67	0.34	0.78	0.68	0.71
Cosmopolitan index	5.12	5.47	-0.86	5.02	5.17	-0.20	5.57	5.11	1.08
School political activities	2.67	3.20	-1.19	3.41	3.67	-0.37	3.13	3.42	-0.59
Ideology index	2.36	1.87	1.27	2.56	2.33	0.38	2.97	2.68	0.54
Internal efficacy index	2.05	1.93	0.56	1.91	1.83	0.26	2.09	5.13	0.39
Opinion strength index	4.58	5.27	-1.46	4.91	3.67	1.61	5.13	4.95	0.39
Self confidence index	4.64	4.87	-0.38	4.91	4.00	0.92	4.91	5.53	-1.09
Personal trust index	4.53	4.60	-0.18	4.47	4.83	-0.63	4.35	4.95	-2.04
Political trust index	4.31	3.93	1.00	4.62	4.67	-0.09	4.74	5.00	-0.71
Political knowledge index	2.56	2.53	0.13	2.50	2.50	0.00	2.91	2.94	-0.14
Civic tolerance index	2.60	2.67	-0.45	2.41	2.50	-0.26	2.43	2.58	-0.84
Courses increased interest in politics	4.09	4.53	-1.36	4.03	4.00	0.05	4.17	4.37	-0.59
Listen to politics on radio	4.26	4.33	-0.32	4.15	4.33	-0.49	4.04	3.84	0.73

Table 38. Post-matching balancing tests for bachelor's degree model (continued)

Read about politics in newspaper	2.12	2.47	-1.38	2.17	2.50	-0.77	2.52	2.47	0.19
Watch politics on TV	3.21	3.27	-0.22	3.12	2.83	0.77	3.04	3.52	-1.70
Read about politics in magazine	2.21	2.40	-0.64	2.06	2.00	0.13	2.22	2.05	0.54
Discuss politics with family	0.21	0.46	-2.17	0.42	0.50	-0.39	0.61	0.74	-0.86
Discuss politics with an adult	0.11	0.13	-0.30	0.15	0.00	0.99	0.04	0.05	-0.14
Plan to attend 4 year college	0.27	0.40	-1.02	0.62	0.83	-1.01	0.69	0.79	-0.68
High school vocational curriculum	0.10	0.07	0.40	0.00	0.00	.	0.00	0.00	.
High school college prep curriculum	0.10	0.13	-0.41	0.12	0.17	-0.33	0.08	0.00	1.31
	BLOCK 4			BLOCK 5			BLOCK 6		
	Cont.	Treat.	t	Cont.	Treat.	t	Cont.	Treat.	t
Watch politics TV with family	0.83	0.94	-1.68	0.79	0.81	-0.27	1.00	0.92	0.64
Discuss politics with friends	2.06	2.10	-0.16	1.74	2.12	-1.50	2.00	2.49	-0.77
Spending money from parents	0.70	0.57	1.33	0.66	0.71	-0.56	0.60	0.80	-1.05
Cosmopolitan index	5.42	5.39	0.14	5.82	5.88	-0.33	6.40	6.15	0.70
School political activities	3.34	3.39	-0.15	3.81	3.74	0.27	4.60	3.59	1.39
Ideology index	2.85	3.18	-1.03	3.50	3.59	-0.29	3.80	4.31	-1.02
Internal efficacy index	2.19	2.18	0.06	2.45	2.43	0.11	2.60	2.67	-0.26
Opinion strength index	4.91	4.88	0.05	5.68	5.41	0.89	5.00	6.20	-1.80
Self confidence index	5.26	5.12	0.30	5.47	5.48	-0.01	5.80	5.80	0.00

Table 38. Post-matching balancing tests for the bachelor's degree model (continued)

Personal trust index	4.87	4.76	0.56	4.76	4.69	0.31	5.20	4.55	1.28
Political trust index	5.00	5.06	-0.27	5.61	5.71	-0.46	6.20	6.35	-0.43
Political knowledge index	2.87	3.00	-0.77	3.32	3.21	0.68	3.40	3.43	-0.08
Civic tolerance index	2.57	2.55	0.19	2.50	2.41	0.69	2.40	2.27	0.36
Courses increased interest in politics	4.28	4.14	0.55	4.16	3.93	0.82	4.00	4.02	-0.03
Listen to politics on radio	4.26	4.20	0.32	3.94	4.06	-0.68	4.60	4.08	1.28
Read about politics in newspaper	2.43	2.47	-0.25	2.68	2.45	1.45	2.80	2.61	0.56
Watch politics on TV	3.13	2.98	0.72	3.21	3.22	-0.04	3.20	3.20	0.01
Read about politics in magazine	2.15	2.04	0.49	1.97	2.01	-0.20	1.60	1.73	-0.29
Discuss politics with family	0.94	0.76	2.50	0.95	0.97	-0.61	1.00	1.00	.
Discuss politics with an adult	0.00	0.00	.	0.00	0.00	.	0.00	0.00	.
Plan to attend 4 year college	0.91	0.90	0.28	1.00	0.98	0.74	1.00	1.00	.
High school vocational curriculum	0.00	0.00	.	0.00	0.00	.	0.00	0.00	.
High school college prep curriculum	0.06	0.12	-0.98	0.03	0.01	0.43	0.20	0.04	1.52

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