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## Long-Term Consequences of Youth Volunteering: Voluntary Versus Involuntary Service

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### Abstract

Despite the renewed interest in youth volunteering in recent years, there remain major gaps in our knowledge of its consequences. Drawing data from the National Longitudinal Study of Adolescent to Adult Health, we examine the long-term effects of youth volunteering on the civic and personal aspects of volunteers' lives. Our results suggest that youth volunteering has a positive return on adult volunteering only when it is voluntary, and that net of contextual factors neither voluntary nor involuntary youth service has a significant effect on adult voting. Regarding personal outcomes, our findings indicate that the psychological benefits of youth volunteering accrue only to voluntary participants, whereas both voluntary and involuntary youth service are positively associated with educational attainment and earnings in young adulthood. Taken together, these results lend support to the case for youth volunteer programs, though the civic benefits of these programs appear to be less dramatic than generally suggested.

### Keywords

Youth Volunteering; Civic Engagement; Psychological Well-Being; Educational Attainment; Earnings; Family Fixed Effects

### 1. Introduction

When he visited the United States nearly two centuries ago, Alexis de Tocqueville (2006[1840]) observed that the habit of forming voluntary associations to pursue shared goals was a defining characteristic of Americans. Since then, countless analysts have joined Tocqueville in describing the United States as “a nation of joiners” with a strong civic tradition. Over the past two decades, however, an increasing number of scholars have voiced

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<sup>3</sup>Borrowing from Adler and Goggin (2005, p.241), we conceptualize civic engagement as involvement “in the life of a community in order to improve conditions for others or to help shape the community’s future.” This definition includes a wide range of activities from volunteering and community service to participation in protests, boycotts, and the formal political system. Following Hart et al. (2007), we focus on two components of this complex concept: volunteering and voting. While these two indicators do not capture all aspects of civic engagement, they reflect its two major dimensions: community involvement and formal political participation.

concerns about declining levels of social capital and civic engagement in America, particularly among younger cohorts (e.g., Jennings and Stoker 2004, McPherson, Smith-Lovin, and Brashears 2006; Putnam 1995, 2000). Additionally, considerable research has provided evidence of a widening civic divide based on class, race, and educational attainment (e.g., Sander and Putnam 2009; Spring, Dietz, and Grimm 2007; Syvertsen et al. 2011). Coupled with the widespread media portrayal of youth as apolitical and self-absorbed, these findings have added fuel to a growing sense of crisis that has pervaded the public discourse on democracy and citizenship since the late 1980s.

One response to this situation has been a renewed interest in youth volunteering<sup>1</sup> as a potential source of civic renewal. Hence, the last two-and-half decades have seen an intensification of the efforts to involve adolescents in volunteer service activities, especially through school-based programs (Keith 1994; Niemi, Hepburn, and Chapman 2000; Raskoff and Sundeen 1999). A key indicator of this trend is the proliferation of policies at the federal, state, and local levels that either encourage or mandate community service in public schools. Thanks to these policies, today the vast majority of public middle and high schools in the United States offer community service opportunities for their students, although the percentage of schools that have service-learning programs<sup>2</sup> has gradually decreased during the first decade of the twenty-first century (Spring et al., 2008).

As the popularity of youth volunteer and community service programs have dramatically increased among policymakers, civil society actors, and educators, it is imperative to examine the consequences of youth volunteering. Past research has shown that participation in volunteer and community service activities can raise social and political awareness among adolescents, foster their commitment to moral principles, cultivate their civic skills, improve their sense of political efficacy, and inculcate in them a durable disposition to serve their communities and engage in political processes (Astin, Sax, and Avalos 1999; Janoski, Musick, and Wilson 1998; Johnson et al. 1998; McFarland and Thomas 2006; Niemi, Hepburn, and Chapman 2000; Yates and Youniss 1996, 1998; Youniss, McLellan, and Yates 1997; Youniss et al. 1999). Besides these societal benefits, youth volunteering has also been associated with personal gains in self-esteem (Conrad and Hedin 1982; Johnson et al. 1998; Yogeve and Ronen 1982), social skills (e.g., communication, leadership, and problem solving) (Celio et al., 2011; Conrad and Hedin, 1982), social capital (Flanagan et al., 2015), and academic motivation and performance (Celio, Durlak, and Dymnicki 2011; Conway, Amel, and Gerwien 2009). Moreover, some exceptions notwithstanding (Helms, 2013; Stukas et al., 1999; Warburton and Smith, 2003), researchers have reported that required service can yield similar benefits as voluntary service, especially if it is sustained and of high quality (Flanagan et al. 2015; Hart et al. 2007; Henderson et al. 2007; Henderson, Brown, and Pancer 2012; Metz and Youniss 2003, 2005).

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<sup>1</sup>Volunteering is defined as a distinct type of prosocial behavior in which individuals offer their time and services willingly, deliberately, and without material compensation to help others (Snyder and Maki, 2015; Snyder and Omoto, 2008; Wilson, 2000). Although mandatory service programs do not fully satisfy this definition, we use the term youth volunteering broadly to refer to both voluntary and required service activities performed by adolescents.

<sup>2</sup>Service-learning programs incorporate community service into the curriculum, combining service experiences with academic instruction and classroom discussion.

Often, these findings are construed as evidence that youth volunteering, whether voluntary or required, has important long-term benefits for both society and individual volunteers. There are, however, three shortcomings in the existing literature that urge us to remain cautious about this interpretation. First, given the scarcity of nationally representative panel data that monitor the civic attitudes and behaviors of adolescents well into early adulthood, it is not clear whether youth volunteering, particularly when it is mandated, has a positive and long-term return on civic engagement. Second, research on the personal consequences of youth volunteering is limited, with most studies investigating short-term changes in attitudes toward self and academic indicators. In particular, little is known about how youth volunteering is associated with fundamental later life outcomes such as psychological well-being, educational attainment, and occupational achievement. Finally, the results of a growing body of research on the contextual determinants of youth civic engagement suggest that the association between youth volunteering and many early adulthood outcomes may be confounded by unobserved heterogeneity at the family, neighborhood, and school levels. Therefore, estimates from conventional OLS models are likely to be biased.

In this study, we draw data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) to investigate the long-term consequences of youth volunteering in both civic and personal domains of life. Our goal is to examine whether regular participation in volunteer and community service activities during adolescence leads to: (i) increased civic engagement,<sup>3</sup> (ii) improved psychological well-being, and (iii) better educational and labor market outcomes in young adulthood. In addition, we distinguish between voluntary and involuntary service to examine if the expected benefits of youth volunteering accrue only to voluntary participants. To our knowledge, this is the first study to investigate all these outcomes simultaneously, thereby allowing a comparative assessment of the effects of youth volunteering on key aspects of social and personal life. Also, unlike previous studies on this subject, we use family and high-school-of-origin fixed effects models to control for unobservable contextual factors that might be correlated with both youth volunteering and our outcome variables.

## 2. Background

### 2.1. Youth volunteering and civic benefits

Scholars have argued that youth volunteering can foster adult civic engagement by getting young people to reflect on issues of public concern, strengthening their commitment to social justice, and cultivating their civic knowledge, skills, and dispositions. Mounting evidence suggests that volunteering during adolescence is associated with increased community involvement in adulthood. For example, in a case study of black urban adolescents who participated in a year-long service-learning program, Yates and Youniss (1998) found that community service instilled a sense of civic responsibility in students and predicted the probability of volunteering after graduation. Similarly, using the first four waves of the Youth Development Study (1988–1991), Johnson et al. (1998) found that volunteering heightened the anticipated importance of community involvement among ninth-grade students in the St. Paul Public School District in Minnesota. Two panel studies with longer timeframes and greater generalizability reported comparable findings. First,

drawing data from a nationally representative study of high school seniors, Janoski, Musick, and Wilson (1998) found that volunteer work undertaken in high school years enhanced students' pro-social attitudes and increased their likelihood of volunteering in adulthood. Second, Astin, Sax, and Avalos (1999) analyzed data collected from students at 388 colleges and universities. Their results showed that even after controlling for service participation during college, the frequency of volunteering during high school was positively linked to the frequency of volunteering five years after college.

There is also some evidence that youth volunteering can stimulate political participation. In a repeated cross-sectional study of high school seniors, Youniss et al. (1999) found that the frequency of community service correlated positively with students' inclination to participate in conventional and unconventional political activities. Echoing this finding, McFarland and Thomas (2006) found that involvement in high school service clubs had a positive return on students' political participation 7 to 12 years later. Nevertheless, there is also some research suggesting that youth volunteering may not have a meaningful effect on political participation, at least in its more conventional forms. Several scholars, for example, have argued that young people tend to see community service as a morally superior alternative to electoral politics, which eliminates possible carryover effects from the former to the latter (e.g., Andolina et al. 2002; Walker 2000). More broadly, it has been suggested that younger generations tend to be cynical about traditional political institutions and practices, thus seeking solutions to social problems through other forms of civic engagement (Dalton, 2009; Zukin et al., 2006).

More recent studies, however, have noted a significant increase in youth political participation and voter turnout, particularly during the 2008 Obama campaign (Fisher, 2012; Sander and Putnam, 2009). These studies indicate that younger cohorts are not necessarily less interested in or more cynical about electoral politics than are older Americans. Indeed, the 2008 election showed that young people may play decisive roles in elections that excite them. Even so, youth volunteering may have little influence on adult voting, which is our indicator for political participation. As Verba, Schlozman, and Brady (1995) demonstrate, voluntary associations enhance political participation by providing opportunities for citizens to develop their civic skills and exposing them to political stimuli, including solicitations for political activity. But different forms of political participation have different configurations of participatory factors. Voting is unique in that as a low-threshold activity it depends primarily on psychological engagement with politics, especially political interest and partisanship, rather than on money, time, and civic skills (Verba et al., 1995, pp. 356–68). Therefore, any civic skills acquired from youth volunteering are likely to be largely irrelevant for voting. If youth volunteer and community service programs are also a limited source of overtly political stimuli, then we would not expect to see a significant association between youth volunteering and adult voting. In summary, while there is relatively strong evidence that youth volunteering bolsters later community involvement, both theory and empirical evidence offer mixed expectations regarding the relationship between youth volunteering and later political participation.

Since the involvement of youth in volunteer and community service programs is not always voluntary, some have questioned whether required service programs provide the same

benefits as voluntary ones. In fact, a number of scholars have argued that service requirements may do more harm than good, for they are likely to induce feelings of external control among participants, thereby diminishing their intrinsic motivation to perform volunteer work (e.g., Sobus 1995). There is some evidence to support this claim. For instance, in an experimental study, Stukas, Synder, and Clary (1999) found that students' subjective perceptions of external control played an important role in their reactions to mandatory volunteering: while those already inclined to volunteer were relatively unaffected, those less inclined to volunteer of their own accord were negatively affected. Similarly, in a qualitative analysis of ten focus group discussions, Warburton and Smith (2003) observed that mandatory programs tended to diminish students' sense of agency, lead to frustration, and generate negative attitudes toward future volunteering.

Many studies, however, have disputed these findings. Comparing three successive classes of students in a Boston high school, one without and two with a community service requirement, Metz and Youniss (2003, 2005) found that mandated community service did not have significant effects on students already inclined to volunteer, but increased less-inclined students' intentions to vote and volunteer in the future. Likewise, in a series of studies on the mandatory community service program implemented by the Ontario provincial government in 1999, Henderson and colleagues (Henderson et al., 2014, 2012, 2007) found no significant differences between students from mandated and non-mandated cohorts regarding their civic attitudes and behaviors in the short run. The authors concluded that mandatory programs can have a positive effect on subsequent civic engagement, especially if they demand long-term commitment from students and produce positive experiences.

These studies paint a fairly optimistic picture with regard to the civic consequences of required service; however, only a few use nationally representative data, and none examine long-term effects. Two important exceptions are the recent works by Hart et al. (2007) and Planty, Bozick, and Regnier (2006). Although both studies used data from the National Educational Longitudinal Study of 1988, they reported slightly different findings. Hart and colleagues found that high school community service, even when required, had strong and positive effects on long-term voting and volunteering, after controlling for demographics and civic attitudes. Planty and colleagues, on the other hand, found that net of initial propensity to volunteer, sociodemographic characteristics, school experiences, and life-course contingencies, high school community service requirements had a positive, but short-term effect on adult volunteering. In summary, given the scarcity of longitudinal data and discrepant findings, the relationship between involuntary service activity during adolescence and adult civic engagement is inconclusive.

## 2.2. Youth volunteering and personal benefits

**2.2.1. Youth volunteering and psychological well-being**—While some studies have shown that participation in volunteer and community service programs is associated with increased self-esteem among young people (Conrad and Hedin 1982; Johnson et al. 1998; Yogeve and Ronen 1982), little is known about the effects of youth volunteering on broader indicators of psychological well-being. Indeed, most studies investigating the relationship

between volunteering and mental health focus on adults, especially the elderly (e.g., Musick and Wilson 2003; Hong and Morrow-Howell 2010; Thoits and Hewitt 2001). Overall, the results of these studies indicate that volunteering is linked to fewer depressive symptoms and higher life satisfaction among adults. However, analyzing data from the Americans' Changing Lives dataset, a national longitudinal survey of adults aged 25 and over, two studies found that age moderated the effect of volunteering on mental health, with the benefits being significantly stronger in old age (Kim and Pai, 2010; Musick and Wilson, 2003).

At first glance, this finding suggests that volunteering may have very little, if any, effect on the mental health of adolescents. A closer examination of the mechanisms that mediate the association between volunteering and mental health, however, offers a rather different view. As Musick and Wilson (2003) put it succinctly, volunteering influences subjective well-being through two basic mechanisms. First, it provides "psychological resources" (e.g., self-esteem and sense of self-efficacy) that are useful for managing negative feelings like depression, anxiety, and stress. Second, it provides "social resources" (e.g., new social ties) that reduce isolation and offer social support. The authors argue that these resources are particularly important for the elderly, as they are more likely to experience social withdrawal, role loss, and decreased self-esteem due to such factors as retirement, widowhood, and physical decline. Admittedly, social withdrawal is less of a threat for adolescents; therefore, any gains in social ties from volunteering may not be as psychologically important for them as they are for the elderly. Nevertheless, adolescence is a critical period of development characterized by profound biological changes and increased social responsibilities (Brittian and Humphries, 2015). Moreover, adolescence represents a crucial stage for identity development, during which young people take on new social roles and struggle to find their place in society (Erikson, 1968). Since these processes are fraught with uncertainties and emotional challenges, it stands to reason that volunteering should have a positive return on adolescents' subjective well-being by amplifying their psychological resources. Besides, youth volunteering may influence later psychological well-being indirectly through adult volunteering. However, if, as its critics argue, mandatory service programs cause adverse feelings in participants, then the positive effects of volunteering on mental health may be limited to those who participate in volunteer activities because they want to, not because they have to.

### **2.2.2. Youth volunteering and educational and labor market outcomes—**

Considerable evidence shows an association between youth volunteering and improved academic outcomes. Much of this evidence comes from the evaluations of community service and service-learning programs. Two recent meta-analyses summarized the findings of these studies. In the first one, Conway et al. (2009) reviewed the quantitative evidence on 103 curricular and noncurricular service programs. Across the 19 studies that reported educational outcomes, the authors found statistically significant gains in students' academic motivation, attitudes, knowledge, and grades. Second, analyzing published and unpublished studies on 62 service-learning programs, Celio, Durlak, and Dymnicki (2011) showed that, on average, service-learning programs yielded significant gains in attitudes toward school and grades.

Except for program evaluations and qualitative assessments, however, research on the educational effects of youth volunteering is limited, with little information on long-term outcomes such as educational attainment. In two panel studies, Astin and colleagues (Astin et al., 1999; Astin and Sax, 1998) reported a positive association between service participation and various academic measures, but these studies focused on college volunteering. By contrast, another panel study (Johnson et al., 1998) found that volunteering in high school did not have a statistically significant relationship with educational outcomes, once selection into volunteering was controlled for. Though the null finding in this study may be due to its small, regional sample, it indicates that there is a need for more research in this area. If youth volunteering indeed helps cultivate communication, leadership, and problem-solving skills (Celio et al., 2011; Conrad and Hedin, 1982), then we should expect it to have long-term effects on educational outcomes. Moreover, if these skills are acquired by involuntary, as well as voluntary, participants, then required service activities may have similar educational effects as voluntary ones.

While a few studies have documented a positive relationship between volunteering and occupational achievement in adults (Hackl et al., 2007; Wilson and Musick, 1999), we know of no study that investigates the effect of youth volunteering on later labor market outcomes. However, Wilson and Musick's (1999) discussion of why volunteering may lead to better occupational outcomes provides some insights that may also be applicable to adolescents. The authors mention four possible mechanisms. First, volunteering can affect occupational outcomes through its effects on educational attainment. Second, volunteering can provide volunteers with new social contacts, who may be critical in obtaining information about better job opportunities. Third, volunteering can help individuals develop work-related skills, which in turn makes them more qualified for better jobs. And finally, volunteering can boost individuals' self-esteem and confidence, thereby increasing their desire to apply for better jobs. Since the last mechanism is predicated on the psychological effects of volunteering, it may be specific to voluntary service. There is, however, no reason why the other three mechanisms should not apply to involuntary service as well. If this is indeed the case, then there may not be a significant difference between the effects, if any, of voluntary and involuntary youth volunteering on later labor market outcomes.

### 2.3. The present study

To reiterate, this study uses data from Add Health to investigate the long-term effects of youth volunteering on both civic and personal aspects of volunteers' lives. More specifically, we examine whether regular volunteer service participation during adolescence is associated with two basic forms of civic engagement (volunteering and voting) and three important life outcomes (psychological well-being, educational attainment, and earnings) in early adulthood. We also explore whether any of these associations differ between voluntary and involuntary participants.

A key concern in examining the civic and personal consequences of youth volunteering is that observed associations may reflect the confounding effects of unobserved factors at the family, neighborhood, and school levels. To begin with, it is well recognized that various family-level characteristics influence youth volunteering. For example, adolescents who

discuss civic and political issues with their parents tend to be more committed to civic participation (Kahne and Sporte, 2008). Similarly, adolescents whose parents have relatively high levels of community involvement are more likely to participate in volunteer activities (Bekkers 2007; Caputo 2009; Fletcher, Elder, and Mekos 2000; Mustillo, Wilson, and Lynch 2004). General emotional climate at home (e.g., perceived love and warmth) and parenting practices (e.g., involvement in school and engagement in shared activities) also play a role in promoting youth civic engagement (Duke et al. 2009; Fletcher, Elder, and Mekos 2000). In addition, evidence indicates that adolescents from disadvantaged home environments are less likely to engage in volunteering (Mustillo et al., 2004). Furthermore, scholars have recently suggested that there are genetic influences on prosocial behavior (Hur and Rushton, 2007) and volunteerism (Son and Wilson, 2010).

Second, previous research has shown that neighborhood experiences are related to young people's civic participation. For instance, adolescents growing up in neighborhoods with more resources and greater perceived safety tend to manifest a higher sense of community, which is one of the main determinants of community involvement among youth (Flanagan et al., 2007; Zeldin and Topitzes, 2002). Evidence also suggests that living in a civically responsive neighborhood, where neighbors support young people and work to make the community better, fosters adolescents' commitment to civic participation (Kahne and Sporte, 2008).

Finally, especially in the United States, schools play a vital role in cultivating adolescents' civic values, skills, and habits (Andolina et al., 2003; Wilson, 2012). In addition to classroom-based civics instruction and school-based service opportunities, schools provide an important milieu for civic socialization through the so-called "hidden curriculum," i.e., values, norms, and attitudes internalized by students in the course of their interactions with teachers, fellow students, and others while at school. Indeed, a healthy school climate has been shown to reinforce civic norms and dispositions among young people. For example, students are more likely to be civically engaged in young adulthood if they: (i) believe that their teachers care about students and treat them fairly, (ii) perceive themselves to be part of the school, and (iii) feel happy and safe at school (Duke et al., 2009; Flanagan et al., 2007). Additionally, social connectedness among peers in high school has been found to have a positive return on individuals' later civic engagement (Settle et al., 2010). It has also been suggested that private schools may be more successful than public ones in providing a climate that fosters civic engagement, which is why attending a private school is positively correlated with later volunteering and voting (Dill, 2009).

Since these family, neighborhood, and school characteristics are known to influence not only youth volunteering but also adult civic engagement and a range of later life outcomes from mental health to educational attainment, researchers should account for them to confidently estimate the long-term effects of youth volunteering. However, the diversity and complexity of these characteristics make it practically impossible for researchers to fully control for them using conventional OLS methods (Campbell, 2015). Put simply, the problem is that many of these characteristics are very difficult to observe and operationalize. For example, such measures as genetic endowments, parental volunteerism, parenting styles, neighborhood social capital, and the nature of relations at school are rarely available to



researchers. To overcome this problem, we base our estimations on high-school-of-origin fixed effects and family fixed effects models. We compare the estimates from conventional OLS, high-school-of-origin fixed effects, and family fixed effects models to examine whether and to what extent shared unobserved characteristics at the family, neighborhood, and school levels contribute to explaining the associations between youth volunteering and our dependent variables.

### 3. Data and methods

#### 3.1. Data

To answer our research questions, we use data from Add Health, which is a school-based, longitudinal study of the health-related behaviors of adolescents and their outcomes in young adulthood. Beginning with an in-school questionnaire administered to a nationally representative sample of students in grades 7 through 12 in 1994–1995, the study followed up with a series of in-home interviews of students approximately 1 year (1996; Wave 2), 6 years (2001–2002; Wave 3), and 13 years later (2007–2008; Wave 4). By design, the Add Health survey included a sample stratified by region, urbanicity, school type, ethnic mix, and size.

Of the 20,745 individuals who completed the Wave 1 survey, 15,170 and 15,701 were followed longitudinally at Wave 3 and Wave 4, respectively. In addition, a sub-sample of siblings were followed over time. This sample included nearly 5,400 individuals at Wave 1, and approximately 70 percent of them were followed longitudinally along with their siblings. In the full sample, individuals with missing school identification numbers were dropped ( $n = 376$ ). Additionally, 482 respondents were dropped due to non-responses on some of the individual and family background variables (except for family income and mother's education), with the primary source of missingness being rural status ( $n = 178$ ). Following recommended analytic practices (Allison, 2002), we employed multiple imputation to handle missing values in Wave 1 family income and mother's education level (about 20% missing data). Using the chain equations (ICE) procedure in STATA 14, we performed five imputations to predict missing values (Royston, 2004), and did not impute missing values on dependent variables (von Hippel, 2007).<sup>4</sup> After the exclusions, the largest sample in our study (for Wave 3 depression scale as the outcome) had 14,688 individuals for the full sample and 3,032 individuals for the family sample. It should be noted that the sample size varies across outcome variables due to different levels of missingness.

#### 3.2. Dependent variables

The primary dependent variables in this study reflect two basic forms of civic engagement (volunteering and voting) and three important life outcomes (psychological well-being, educational attainment, and labor market outcomes) in young adulthood. The measure of volunteering in young adulthood was based on respondents' reports to the following questions: "During the last 12 months did you perform any unpaid volunteer or community

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<sup>4</sup>It is important to note that the missing data on family-level variables did not affect our preferred specification, i.e., family fixed effects models, since these models eliminate all characteristics shared by siblings.

service work?” (Wave 3) and “In the past 12 months, about how many hours did you spend on volunteer or community service work?” (Wave 4). For Wave 4, the measure of volunteering was coded 1 if a respondent reported that he or she spent at least one hour on volunteer or community service work. The measure of Wave 3 voting was drawn from the question whether the respondent voted in the most recent presidential election, whereas the measure of Wave 4 voting was drawn from the following question: “How often do you usually vote in local or statewide elections?” The respondents who reported voting often or always were coded 1.

To assess psychological well-being at Wave 3 and Wave 4, we employed depression scales derived from the Center for Epidemiologic Studies Depression (CES-D) scale (9 items of the full 20-item scale). We used years of schooling and log earnings, respectively, to measure educational attainment and labor market outcomes. Collected in Wave 4, personal earnings before taxes were measured on an interval scale. We used the midpoint of each interval in our analyses. Like personal earnings, years of schooling were collected at Wave 4, when the respondents were about 29 years old on average.

### 3.3. Independent variables

In Wave 3 of the survey, young adults were retrospectively asked about their volunteer service participation during adolescence, from which we obtain our measure of youth volunteering: “At any time during your adolescence, when you were between 12 to 18 years old, did you regularly participate in volunteer or community service work? Don’t count things like washing cars or selling candy to raise money.” Following this question, the respondents were asked whether their participation was strictly voluntary, ordered by a court as part of a sentence, or required by their parents, school, or religious group. To assess if the associations between youth volunteering and later outcomes differ between voluntary and involuntary participants, our measure of youth volunteering included two separate binary variables indicating whether the service work was “strictly voluntary” or “required by others.” The category of court-ordered community service was excluded, as only about 2 percent of the sample reported that their service was court-ordered. Similarly, we did not use a mutually exclusive measure of youth volunteering (i.e., no volunteering, voluntary participation, involuntary participation, and both voluntary and involuntary participation), because a surprisingly small percentage of the respondents (2.5 percentage) reported both voluntary and involuntary service participation. In separate analyses we tested whether this choice significantly altered our results. Due to the small sample size, the coefficients for the category of “both voluntary and involuntary participation” were too noisy to interpret, while the coefficients for “voluntary participation” and “involuntary participation” were consistent with the ones reported in this study (available upon request).

In addition to these measures, our models involve a set of predetermined demographic control variables such as age, gender, race/ethnicity, first-born child, and grade level. Moreover, in conventional OLS models (i.e., models with no fixed effects), we include the following set of family-level control variables: mother’s education, family income, and living in a rural setting. All these variables were collected at Wave 1.

### 3.4. Analytic strategy

Our analyses proceed in three main stages. In our baseline empirical specifications, we estimate variations of the following OLS regression model:

$$Y_i = YouthVol_i \alpha + X_i \delta + \varepsilon_i \quad (1)$$

where  $Y_i$  is the outcome of interest in young adulthood, and the vector  $X_i$  represents standard socio-demographic characteristics and additional controls. Eq. (1) cannot account for unobserved factors that might affect both youth volunteering and later outcomes. To address the potential biases that may stem from unobserved heterogeneity at the neighborhood and school levels, we expand the baseline model to allow for high-school-of-origin fixed effects:<sup>5</sup>

$$Y_{is} = YouthVol_{is} \beta + X_{is} \eta + \tau_s + \varepsilon_{is} \quad (2)$$

where  $\tau_s$  denotes a set of school dummies. While Eq. (2) helps control for unobserved neighborhood and school characteristics, it is still possible that the estimates will be biased by unobserved family-level characteristics. Thus, at the third stage, we use family fixed effects to reduce the potential for omitted variable bias at the family level:

$$Y_{if} = YouthVol_{if} \gamma + Z_{if} \lambda + \mu_f + \varepsilon_{if} \quad (3)$$

where  $\mu_f$  denotes a set of family dummies, and the vector  $Z$  represents individual level variables that vary between siblings (e.g., gender, age, birth order, etc.). We compare the coefficients of youth volunteering estimated by these three classes of models to assess whether baseline models are driven by omitted variable bias at the family, neighborhood, and school levels. For baseline and high-school-of-origin fixed effects models, we cluster standard errors at the school level; for family fixed effects models, we cluster standard errors at the family level.

The family fixed effects models introduced at the third stage of the analyses are our preferred specification. The key strength of these models is that they allow us to account for all the unobserved characteristics that are shared between siblings. Since siblings have the same parents, reside in the same neighborhood, and often go to the same or similar schools, they share many of the traits and experiences that shape adolescents' civic values, skills, and attitudes. Thus, the family fixed effects approach goes a long way toward controlling for selection into volunteering. However, the approach is not without limitations. Most importantly, it is unable to account for confounding characteristics that are specific to each sibling. Although siblings share many family and social background characteristics, there are some that they do not share. For example, siblings are not genetically identical unless

<sup>5</sup>Since our data do not include a measure of neighborhood status, we employ high-school-of-origin fixed effects to control for neighborhood characteristics (Fletcher 2013b).

they are monozygotic twins. And even monozygotic twins may be treated differently by their parents. Moreover, siblings tend to be in different grades in school, and therefore often have similar but not exactly the same teachers and friends. Since the family fixed effects approach is unable to control for potential confounders that are specific to each sibling, the within-family estimates of this study do not necessarily reflect the “true” causal effects of youth volunteering.

Nevertheless, to address the possibility that the relationships observed by our preferred models are spuriously driven by preexisting individual characteristics, we estimate additional specifications controlling for a large set of individual-level factors that vary within families and are known to influence both the propensity to volunteer and our outcome variables. These controls include school problems, college aspirations, self-reported GPA (Grade Point Average), school-year work, delinquency scale, sexual activity, religious attendance, and self-esteem.<sup>6</sup> The results from these models should be interpreted cautiously because the temporal ordering of these variables (measured in Wave 1) and volunteering experiences (between ages 12 and 18) are not ascertained. To the extent that the volunteering experiences of the respondents in the family sample precede the Wave 1 survey, these models will capture the potential mediating roles of the additional covariates, rather than simply control for preexisting individual characteristics.

#### 4. Results

Summary statistics for the family sample are presented in Table 1. We include summary statistics for the full sample in Table S1 in Supplementary files. These tables reveal that the family and full samples are quite similar in terms of observed characteristics. The average age of the family sample at Wave 1 was 16, ranging from 12 to 21. Approximately 60 percent of the respondents were White. While 58 percent of the respondents did not engage in volunteering during adolescence, 36 percent volunteered regularly. Approximately 10 percent of the respondents reported having participated in “involuntary” volunteering.

One concern in estimations based on family samples is that siblings may show a high degree of concordance on the variables of interest. Consistent with prior research (Fletcher 2013a), we found that the siblings in our sample were sufficiently discordant, which reduces this concern. In an attempt to quantify the discordance, Table 2 shows the proportion of discordant siblings on a select set of key variables and the R-squared from a regression of

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<sup>6</sup>The school problems scale combines responses to four questions that asked, “Since school started this year, how often have you had trouble (1) getting along with your teachers; (2) paying attention in school; (3) getting your homework done; (4) getting along with other students?” Responses to the statements ranged from 1 (strongly agree) to 5 (strongly disagree). College aspirations were measured with the question: “How much do you want to go to college?” Responses ranged from 1 (low) to 5 (high). Self-reported GPA is the mean grade (on a 4-point scale) in math, English, history, and science in the last year. School-year work is a dichotomous measure of whether the adolescent was employed and worked for pay in a typical non-summer week during the school year. Delinquency scale measures the number of delinquent activities (out of a total of 14 activities) the respondent engaged in during the past 12 months. Sexual activity is a dichotomous measure of whether the respondent ever engaged in sexual activity. Religious attendance measures how often the respondent attended religious services in the past 12 months. Responses included no religion, never, less than once a month, once a month or more but less than once a week, and once a week or more. Self-esteem was measured as the sum of the following six self-report items, ranging from 1 (strongly agree) to 5 (strongly disagree): (1) “You have a lot of good qualities,” (2) “You have a lot to be proud of,” (3) “You like yourself just the way you are,” (4) “You feel like you are doing everything just about right,” (5) “You feel socially accepted,” (6) “You feel loved and wanted.” The scale was reverse coded so that higher scores indicate more self-esteem. Note that in the tests of the relationship between youth volunteering and psychological well-being in adulthood, we control for Wave 1 depression scale as a lagged dependent variable instead of self-esteem.

each of those variables on a full set of family dummies. For example, about 55 percent of the siblings in the sample were discordant in terms of voluntary participation in youth volunteering, and the variation in this measure “explained” by the family fixed effects was approximately 0.60, which is lower than that of educational attainment (0.77).

#### 4.1. Youth volunteering and civic benefits

**4.1.1. Volunteering**—Tables 3 and 4 report whether youth volunteering provides long-term benefits for society by promoting civic engagement in early adulthood.<sup>7</sup> Table 3 examines the relationship between volunteer work undertaken in adolescence and later volunteering approximately at age 22 (Wave 3) and 29 (Wave 4). The conventional OLS estimates of Model 1 show that youth volunteering, whether voluntary or not, was positively associated with later volunteering, though the coefficient for voluntary service participation was three times larger than that for involuntary service participation ( $p < 0.01$ ). Note that when comparing these results with the ones from the regression using the full sample, we found no large differences (Table S2 in Supplementary files).

These baseline associations, however, could be spurious due to unobserved factors at the family, school, and neighborhood levels. To control for potential unobserved heterogeneity at the school and neighborhood levels, Model 2 introduces high-school-of-origin fixed effects. The results show no significant change in the coefficients of voluntary and involuntary youth service. This indicates that unobserved school and neighborhood factors did not confound the relationship between youth volunteering and later volunteering.

To address the possibility of shared unobserved heterogeneity at the family level, we examine sibling comparisons by controlling for family fixed effects. The results from within-sibling comparisons (Model 3) offer two important findings. First, the associations between voluntary youth service and Wave 3 volunteering were robust to controlling for unobserved family characteristics, though the magnitude of the coefficient was reduced by 25%. Second, the inclusion of family fixed effects reduced the magnitude of the coefficient for involuntary youth service by 93% and eliminated its statistical significance. A joint Hausman test for the equality of the coefficients for voluntary and involuntary service participation between OLS and fixed effects specifications (i.e., Model 1 vs. Model 3) was statistically significant at the  $p$ -value = 0.02, and the single tests also rejected the equality of the coefficients for voluntary and involuntary service participation at the  $p$ -value = 0.03 and 0.02, respectively. Importantly, Model 4 shows that after adding an extensive set of individual-level controls, the point estimate of voluntary youth service only slightly decreased, suggesting that the association was not driven by preexisting individual differences.

By using Wave 4 volunteering as the outcome, Models 5–8 examine whether the effects of youth volunteering on later volunteering persists through young adulthood.<sup>8</sup> While the results reveal a reduction in the magnitude of the association between youth volunteering

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<sup>7</sup>Full tables for the regression models presented in this study can be found in Supplemental files (Tables S6–S9).

<sup>8</sup>We present the results using the common samples between Wave 3 and Wave 4 to make sure that our results were not driven by differential attrition of samples between the waves (Tables S10–S13). We confirmed that our results are considerably robust to using the common samples.

and later volunteering from Wave 3 to Wave 4, the patterns across different specifications were fairly similar. As in Model 2, the inclusion of school fixed effects in Model 6 barely affected the coefficients for youth volunteering. Controlling for family fixed effects in Model 7 considerably reduced the magnitude of the coefficients for both voluntary and involuntary participation; however, the coefficient for voluntary service participation remained statistically significant at the 1% level. Model 8 shows that these results were robust to individual-level controls.

In summary, the results from Table 3 indicate that while the association between involuntary youth service and adult volunteering was confounded entirely by unobserved family characteristics, the association between voluntary youth service and adult volunteering was robust to several sources of heterogeneity. As Models 3 and 7 show, net of contextual factors influencing youth civic engagement, voluntary youth service increased the probability of volunteering at Wave 3 and Wave 4 by about 24 and 9 percentage points, respectively. The results also suggest that the association between youth volunteering and later volunteering extended into young adulthood, although the strength of the association appeared to diminish over time. In the auxiliary analyses (Table S3 in Supplementary files), we tested the effects of youth volunteering on additional outcomes, including blood donation, registration for organ donation, and registration to vote, which were measured at Wave 3 only. The results were qualitatively consistent with the ones from Table 3.

**4.1.2. Voting**—Table 4 presents the OLS estimates of the association between youth volunteering and adult voting. As Models 1 and 5 show, both voluntary and involuntary youth service were associated with adult voting, when unobserved heterogeneity at the school, neighborhood, and family levels was not accounted for. As Models 2 and 6 show, the inclusion of school fixed effects only slightly decreased the associations between youth volunteering and adult voting in Waves 3 and 4.

Thus far, the results from Table 4 were analogous to those from Table 3. However, as can be seen in Models 3 and 7, the coefficients for both voluntary and involuntary youth service decreased substantially after controlling for family background. As a result of this decrease, ranging from 40% to 70%, the coefficients became statistically insignificant. A joint test confirmed the reduction in the coefficients for voluntary and involuntary youth service between Model 1 and Model 3 ( $p < 0.01$ ) and between Model 5 and Model 7 ( $p = 0.08$ ). Similarly, the single tests confirmed the differences in the coefficients for voluntary youth service between Model 1 and Model 3 ( $p < 0.01$ ) and between Model 5 and Model 7 ( $p = 0.02$ ). Overall, our findings suggest that the associations between youth volunteering and adult voting were spuriously driven by family-level confounding factors.

## 4.2. Youth volunteering and personal benefits

**4.2.1. Psychological well-being**—We now turn to the question whether youth volunteering has long-term benefits for volunteers themselves. In this subsection, we focus on psychological well-being, whereas educational and labor market outcomes are examined in the following subsection. Table 5 reports the OLS estimates of the association between youth volunteering and depressive symptoms in Waves 3 and 4. In Model 1, voluntary youth

service was negatively associated with depression, while involuntary youth service showed no association. Controlling for school fixed effects in Model 2 reduced the coefficient for voluntary youth service by 15%; however, the association remained statistically significant, indicating that the relationship between voluntary youth service and depression was not confounded by unobserved school and neighborhood characteristics. To address shared unobserved heterogeneity at the family level, Model 3 controls for family fixed effects. The results reveal that even after family-level confounding factors are controlled for, the association remains marginally significant ( $p = 0.055$ ), despite a 20% reduction in magnitude in comparison to Model 1.

Models 5–8 examine whether the association between voluntary participation in youth volunteering and depression in Wave 3 persisted through Wave 4. As Model 5 shows, the Wave 4 baseline estimate of the coefficient for voluntary participation was almost identical with the Wave 3 baseline estimate ( $-0.500$  vs.  $-0.501$ ). Models 6 and 7 suggest that even net of school-, neighborhood-, and family-level confounders, the negative association between voluntary youth service and depression remained consistent over time, though the magnitude of the association was somewhat attenuated. Moreover, the coefficients for voluntary and involuntary participation between Model 1 and Model 3 and between Model 5 and Model 7 were found to be statistically indistinguishable both jointly and separately (results not shown). However, we should note that the negative association between voluntary youth service and later depressive symptoms is tentative, since accounting for Wave 1 depression scale (lagged dependent variable) as well as a large set of extended controls reduces the statistical significance of the association for Wave 3 and Wave 4 to the  $p$ -value = 0.09 and 0.07, respectively (see Models 4 and 8).

Finally, Table 5 appears to show a positive correlation between involuntary youth service and depression (especially for Wave 4). The auxiliary analyses using life satisfaction at Wave 3 as the outcome yielded a very similar pattern (Table S4 in Supplementary files): while voluntary participation in youth volunteering had a significant and positive return on life satisfaction, involuntary participation showed a negative but statistically insignificant association with life satisfaction. However, the apparent negative association between involuntary youth service and psychological well-being should be interpreted with caution, because the coefficient of involuntary service was small and inconsistent, especially for Wave 3. In short, the evidence that mandated youth service programs may have a negative psychological effect on participants is far from conclusive, and more research is needed to clarify these relationships.

**4.2.2. Educational attainment and earnings**—This subsection examines the effects of youth volunteering on educational attainment and labor market outcomes. In Table 6, Models 1–4 report the results for years of schooling while Models 5–8 report the results for log earnings. Both outcome variables were measured at Wave 4 when the respondents were 29 years old, on average. Model 1 shows that involuntary as well as voluntary youth service was positively associated with years of schooling, which is in contrast to our earlier finding that involuntary youth service was not beneficial for participants' civic and mental health outcomes. While the coefficient for involuntary participation seemed to be larger in magnitude, the difference was not statistically significant ( $p = 0.45$ ). Accounting for school-

and neighborhood-level confounders in Model 2 only slightly reduced the associations (10% for voluntary and 5% for involuntary participation), which remained highly significant.

As Model 3 shows, accounting for family background characteristics reduced the coefficients for voluntary and involuntary youth service by about 60% and 40%, respectively. A Hausman test rejected the equality of the coefficients for voluntary and involuntary participation between conventional OLS and fixed effects specifications (Model 1 vs. Model 3) at the  $p$ -value  $< 0.01$ . The test also rejected the equality of the coefficients in Model 1 and 3 separately for voluntary ( $p < 0.01$ ) and involuntary youth service ( $p = 0.06$ ). In addition, the larger coefficient of involuntary participation in youth volunteering was statistically indistinguishable from that of voluntary participation ( $p = 0.16$ ). Overall, Model 3 indicates that net of school, neighborhood, and family characteristics, voluntary and involuntary participation in youth volunteering increased years of schooling by 0.31 and 0.54 years, respectively. The auxiliary analyses using other educational outcomes (i.e., high school dropout, college enrollment, and completion of a bachelor degree) yielded consistent results (Table S5 in Supplementary files).

Similar to years of schooling, Model 5 shows that youth volunteering, whether voluntary or not, was positively associated with personal earnings. While the association between voluntary youth service and log earnings was somewhat attenuated by the inclusion of controls for unobserved contextual confounders, it remained statistically significant across different specifications (Models 5–7). By contrast, the coefficients for involuntary youth service slightly increased in the fixed effects models. However, a joint Hausman test of the coefficients for voluntary and involuntary youth service between Model 5 and Model 7 was not statistically significant ( $p = 0.56$ ). The single tests for voluntary and involuntary youth service, too, failed to reject the equality of the coefficients, with the  $p$ -value = 0.41 and 0.55, respectively. Moreover, the difference in the magnitude of the coefficients between voluntary and involuntary youth service was also statistically insignificant ( $p = 0.48$ ). As Models 4 and 8 indicate, the effects of youth volunteering on educational attainment and earnings remained statistically significant even with extensive controls at the individual level, despite the reduction in the magnitude of the effects of both voluntary and involuntary youth service on years of schooling.

## 5. Discussion and conclusion

Policymakers, civil society actors, and educators increasingly promote youth volunteer and community service programs as a means for creating a civically responsible and competent citizenry. In addition to these societal benefits, youth volunteering is also believed to offer important personal rewards for volunteers. Despite these expectations, however, there remain large gaps in our knowledge of the long-term consequences of youth volunteering. First, given insufficient longitudinal data and discrepant findings in past research, it is not clear whether youth volunteering, especially when it is involuntary, has a positive and long-term effect on civic engagement. Moreover, little is known about how youth volunteering is related to important life outcomes in early adulthood. To address these gaps, we examined whether volunteer service participation during adolescence was associated with two basic forms of civic engagement (volunteering and voting) and three important life outcomes



(psychological well-being, educational attainment, and earnings) in early adulthood. We also explored whether any of these associations differed between voluntary and involuntary participants.

Our analyses yielded four main findings. First, we found that youth volunteering had a positive return on adult volunteering, net of family fixed effects and standard demographic controls; however, this was true only for voluntary service. Importantly, voluntary service participation predicted adult volunteering even when the respondents were 29 years old on average, although the strength of the association declined from Wave 3 to Wave 4. On the other hand, the relationship between involuntary service participation during adolescence and adult volunteering was not robust to the inclusion of family fixed effects. Second, while the conventional OLS models showed positive associations between youth volunteering (either voluntary or involuntary) and adult voting (both at Wave 3 and Wave 4), these associations disappeared when family fixed effects were included in the analyses. Third, our findings provided tentative evidence that youth volunteering was associated with improved psychological well-being in adulthood (as measured in Wave 3 and 4); however, like in adult volunteering, this applied only to those who participated in volunteer work of their own accord. Finally, we found that not only voluntary but also involuntary service participation was positively correlated with years of schooling and earnings, even after controlling for unobserved characteristics shared by siblings and individual-level factors that vary within families.

These results have important implications for scholarly and policy debates on youth volunteering. To begin with, our results suggest that youth volunteering, when it is voluntary, generates a long-term commitment to volunteering and community involvement. As such, it appears to be an effective tool for creating civic-minded citizens. Nonetheless, this does not necessarily translate into increased political participation, at least in its more conventional forms. This finding is consistent with earlier claims that the younger generations in the United States tend to be alienated from electoral politics and see community service as a morally superior and more useful alternative to it (e.g., Andolina et al. 2002; Walker 2000). Given the recent increase in youth political participation, however, it is more plausible that the civic knowledge and skills acquired in community service activities are not relevant for voting, and that these activities do not expose young people to overtly political messages or recruitment networks (Verba et al., 1995).

Second, requiring adolescents to participate in volunteer work does not seem to be a good idea if the main purpose is to foster adult civic engagement. Indeed, our results indicate that participation in required volunteer work during adolescence does not have a meaningful relationship with adult volunteering and voting, once the social bases of selection into volunteering are controlled for. One possible explanation for this null finding is that the gains from required volunteering, such as greater social awareness and increased civic skills (e.g., Hart et al. 2007), are offset by its adverse effects on participants' intrinsic motivation to engage in volunteer activities (e.g., Stukas, Snyder, and Clary 1999; Warburton and Smith 2003).

In addition, our findings show that youth volunteering, whether voluntary or required, offers important long-term benefits for volunteers. It is particularly remarkable that involuntary service participation during adolescence has a positive return on educational attainment and earnings. In our opinion, the most likely explanation is that regardless of its psychological effects, required volunteering helps adolescents cultivate crucial social skills (e.g., Celio, Durlak, and Dymnicki 2011; Conrad and Hedin 1982) that render them more competent both in academic and occupational terms. It is also possible that youth volunteering, even when required, helps adolescents establish new social ties that provide access to influential role models and useful resources.

Lastly, as a methodological point, our analyses suggest that some of the associations between youth volunteering and adulthood outcomes that were reported in previous studies may have been driven by unobserved heterogeneity at the family, neighborhood, and school levels. This is probably the main reason why, compared to some other longitudinal studies (e.g., Hart et al. 2007), our results present a less rosy picture regarding the civic consequences of youth volunteering. For example, while previous studies using longitudinal data sets control for important family-level characteristics such as family composition and socioeconomic status, these variables fall short of accounting for a wide range of unobserved family-level factors (e.g., genetic endowments, parental civic-mindedness, emotional climate at home, and parenting practices) that are likely to confound the effects of youth volunteering on adult civic engagement. In this paper, we made use of within-sibling variations to deal with the potential biases resulting from these and other omitted variables.

Several limitations of this study should be acknowledged. First of all, our data do not contain detailed information about the respondents' experiences with volunteering during adolescence, such as the type, quality, and exact timing of the volunteer service. If the civic consequences of youth volunteering depend on its type and quality as some scholars have suggested (e.g., Riedel 2002; Taylor and Pancer 2007), then our analyses may have overlooked important interaction effects. Second, the respondents in our sample reported their volunteering experiences during adolescence retrospectively; therefore, their reports may be subject to recall bias, especially with respect to whether their participation was voluntary or not. However, the bias is likely to be small, since (i) the question asks about "regular" involvement in volunteering rather than "any" involvement, and (ii) the time window over which the respondents recall their past experiences is relatively short (7 years on average).

Third, due to data constraints, we were unable to test whether youth volunteering was associated with unconventional political practices, such as protests, boycotts, and online activism. Since some scholars (Dalton, 2009; Zukin et al., 2006) have argued that such practices are the primary way in which younger generations in the United States participate in politics, we believe that this question represents a fruitful avenue for future research. Fourth, while the family fixed effects models allowed us to control for hard-to-measure contextual factors shared by siblings, it is still possible that the results were driven by preexisting differences between siblings that may influence both the propensity to volunteer and our outcome measures. Although our results were quite robust to the inclusion of an extensive set of individual controls, the results should be interpreted cautiously due to our

inability to establish the temporal ordering of these covariates and the timing of youth volunteering. Finally, it is possible that the effects of youth volunteering on our dependent variables differ between adolescents with and without siblings. If this is true, then the family fixed effects estimator will yield biased estimates of the population-level effects (Campbell, 2015).

Despite these limitations, our study makes significant contributions to the literature on youth volunteering. Most importantly, drawing data from a nationally representative longitudinal study and using family and school fixed effects models, we address the potential omitted variable bias in prior studies and present the best available estimates of the effects of youth volunteering on adult civic engagement. Moreover, our research adds a new dimension to our understanding of the consequences of youth volunteering by exploring the relationship between volunteer service participation during adolescence and fundamental life outcomes in adulthood such as psychological well-being, educational attainment, and earnings. Overall, our results lend support to the case for youth volunteer and community service programs, though the civic benefits of these programs appear to be less dramatic than generally suggested.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1**Summary statistics, Add Health: family sample ( $n \approx 3,032$ )

	Wave	Mean	SD	Min	Max
<b>Dependent variables</b>					
<i>Civic engagement in adulthood</i>					
Volunteering	3	0.27	0.45	0.00	1.00
Volunteering	4	0.36	0.48	0.00	1.00
Voting	3	0.42	0.49	0.00	1.00
Voting	4	0.39	0.49	0.00	1.00
Donated blood	3	0.17	0.37	0.00	1.00
Registered organ donor	3	0.36	0.48	0.00	1.00
Registered to vote	3	0.71	0.45	0.00	1.00
<i>Psychological well-being</i>					
Depression scale	3	4.79	4.10	0.00	24.00
Depression scale	4	5.50	4.33	0.00	27.00
Life satisfaction	3	0.37	0.48	0.00	1.00
<i>Education and earning</i>					
Years of schooling	4	13.31	1.96	8.00	19.00
Log earning	4	10.12	1.01	1.61	13.71
HS dropout	4	0.16	0.36	0.00	1.00
College enrollment	4	0.65	0.48	0.00	1.00
Bachelor degree	4	0.32	0.47	0.00	1.00
<b>Independent variables</b>					
<i>Youth volunteering</i>					
No youth volunteering	Age 12–18	0.58	0.49	0.00	1.00
Youth volunteering (voluntary)	Age 12–18	0.36	0.48	0.00	1.00
Youth volunteering (involuntary)	Age 12–18	0.08	0.27	0.00	1.00
<b>Control variables</b>					
Age	1	16.08	1.71	12.00	21.00
Female	All	0.52	0.50	0.00	1.00
White	All	0.56	0.50	0.00	1.00
Black	All	0.23	0.42	0.00	1.00
Hispanic	All	0.14	0.34	0.00	1.00
Other race/ethnicity	All	0.07	0.26	0.00	1.00
First-born child	All	0.38	0.48	0.00	1.00
Grade = 7	1	0.14	0.35	0.00	1.00
Grade = 8	1	0.14	0.34	0.00	1.00
Grade = 9	1	0.19	0.39	0.00	1.00
Grade = 10	1	0.19	0.39	0.00	1.00
Grade = 11	1	0.18	0.38	0.00	1.00
Grade = 12	1	0.14	0.35	0.00	1.00
Grade = missing	1	0.03	0.16	0.00	1.00

	Wave	Mean	SD	Min	Max
Mother's education	1	13.05	2.37	0.00	17.00
Family income	1	0.45	0.51	0.00	9.99
Rural status	1	0.29	0.46	0.00	1.00

*Note.* SD = Standard deviation. Summary statistics do not contain imputed values.

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**Table 2**

Description of between-sibling variation in measures

Key measures	Wave	Proportion of discordant siblings	R-squared
Volunteering	3	0.528	0.61
Volunteering	4	0.562	0.61
Voting	3	0.536	0.68
Voting	4	0.534	0.66
Depression scale	3	0.924	0.62
Depression scale	4	0.942	0.59
Years of schooling	4	0.712	0.77
Log earning	4	0.984	0.68
Youth volunteering (voluntary)	Age 12–18	0.552	0.63
Youth volunteering (involuntary)	Age 12–18	0.357	0.62

*Note.* The proportion of discordant siblings was derived by calculating the standard deviation of each measure within a family, and then families with standard deviations more than zero were put in the discordant group. The R-squared was obtained from a regression of each measure on a full set of family dummies.

**Table 3**  
Coefficients for the association between youth volunteering and later volunteering

	Wave 3				Wave 4			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Youth volunteering (voluntary)	0.322*** (0.016)	0.314*** (0.016)	0.242*** (0.025)	0.237*** (0.025)	0.203*** (0.028)	0.195*** (0.030)	0.085*** (0.029)	0.083*** (0.029)
Youth volunteering (involuntary)	0.106** (0.033)	0.092* (0.035)	0.007 (0.045)	0.001 (0.045)	0.069 (0.043)	0.067 (0.045)	0.027 (0.049)	0.022 (0.049)
School problems				0.002 (0.008)				-0.002 (0.010)
College aspirations				-0.002 (0.010)				-0.022 (0.014)
Self-reported GPA				0.050*** (0.016)				0.048** (0.018)
School-year work				0.020 (0.024)				0.036 (0.028)
Delinquency scale				-0.003 (0.005)				-0.000 (0.006)
Sexual activity				-0.023 (0.025)				0.025 (0.032)
Religious attendance				0.012 (0.012)				0.004 (0.014)
Self-esteem				-0.003 (0.003)				0.003 (0.004)
Sample	Family	Family	Family	Family	Family	Family	Family	Family
Fixed-effects	None	School	Family	Family	None	School	Family	Family
Controls	Basic	Basic	Basic	Extra	Basic	Basic	Basic	Extra
<i>n</i> (individuals)	3008	3008	3008	3008	2475	2475	2475	2475

Note. All models without family fixed effects include the following set of control variables: age, gender, race/ethnicity, grade level, first-born child, mother's education, family income, and rural status. Family fixed effects models include the following set of control variables: age, gender, race/ethnicity, grade level, and first-born child. In all models without family fixed effects, robust standard errors are clustered at the school level. In family fixed effects models, robust standard errors are clustered at the family level.

\*  $p < 0.05$ ;

\*\*  $p < 0.01$ ;

\*\*\*  $p < 0.001$ .

**Table 4**  
Coefficients for the association between youth volunteering and voting behavior

	Wave 4															
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7		Model 8	
	$\beta$ (SE)		$\beta$ (SE)		$\beta$ (SE)		$\beta$ (SE)		$\beta$ (SE)		$\beta$ (SE)		$\beta$ (SE)		$\beta$ (SE)	
Youth volunteering (voluntary)	0.127*** (0.018)	0.110*** (0.018)	0.038 (0.025)	0.032 (0.024)	0.032 (0.024)	0.032 (0.024)	0.032 (0.024)	0.032 (0.024)	0.099*** (0.023)	0.084*** (0.023)	0.084*** (0.023)	0.043 (0.026)	0.043 (0.026)	0.043 (0.026)	0.032 (0.026)	0.032 (0.026)
Youth volunteering (involuntary)	0.082** (0.028)	0.070* (0.029)	0.036 (0.045)	0.028 (0.044)	0.028 (0.044)	0.028 (0.044)	0.028 (0.044)	0.047 (0.038)	0.045 (0.039)	0.045 (0.039)	0.027 (0.046)	0.027 (0.046)	0.027 (0.046)	0.019 (0.047)	0.019 (0.047)	
School problems				-0.001 (0.008)	-0.001 (0.008)	-0.001 (0.008)	-0.001 (0.008)							0.004 (0.009)	0.004 (0.009)	
College aspirations				0.020 (0.012)	0.020 (0.012)	0.020 (0.012)	0.020 (0.012)							0.021 (0.013)	0.021 (0.013)	
Self-reported GPA				0.056*** (0.016)	0.056*** (0.016)	0.056*** (0.016)	0.056*** (0.016)							0.062*** (0.017)	0.062*** (0.017)	
School-year work				0.028 (0.024)	0.028 (0.024)	0.028 (0.024)	0.028 (0.024)							0.024 (0.027)	0.024 (0.027)	
Delinquency scale				0.005 (0.006)	0.005 (0.006)	0.005 (0.006)	0.005 (0.006)							-0.000 (0.006)	-0.000 (0.006)	
Sexual activity				0.034 (0.026)	0.034 (0.026)	0.034 (0.026)	0.034 (0.026)							0.053 (0.030)	0.053 (0.030)	
Religious attendance				0.022 (0.013)	0.022 (0.013)	0.022 (0.013)	0.022 (0.013)							0.046** (0.015)	0.046** (0.015)	
Self-esteem				-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)	-0.003 (0.003)							0.000 (0.004)	0.000 (0.004)	
Sample	Family	Family	Family	Family	Family	Family	Family	Family	Family	Family	Family	Family	Family	Family	Family	Family
Fixed-effects	None	School	Family	Family	Family	Family	Family	Family	None	School	School	Family	Family	Family	Family	Family
Controls	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic
n (individuals)	2960	2960	2960	2960	2960	2960	2960	2960	2481	2481	2481	2481	2481	2481	2481	2481

Note. All models without family fixed effects include the following set of control variables: age, gender, race/ethnicity, grade level, first-born child, mother's education, family income, and rural status. Family fixed effects models include the following set of control variables: age, gender, race/ethnicity, grade level, and first-born child. In all models without family fixed effects, robust standard errors are clustered at the school level. In family fixed effects models, robust standard errors are clustered at the family level.

\* p < 0.05;

\*\* p < 0.01;

\*\*\* p < 0.001.

**Table 5**  
Coefficients for the association between youth volunteering and depression scale

	Wave 4							
	Wave 3				Wave 4			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Youth volunteering (voluntary)	-0.500** (0.161)	-0.427** (0.162)	-0.400 (0.208)	-0.340 (0.201)	-0.501** (0.186)	-0.390* (0.187)	-0.478* (0.241)	-0.415 (0.235)
Youth volunteering (involuntary)	0.013 (0.284)	-0.041 (0.272)	0.079 (0.344)	0.176 (0.332)	0.446 (0.366)	0.551 (0.379)	0.657 (0.414)	0.731 (0.400)
School problems				0.128 (0.078)				0.163 (0.097)
College aspirations				-0.033 (0.103)				-0.027 (0.140)
Self-reported GPA				-0.380** (0.137)				-0.479** (0.165)
School-year work				-0.035 (0.216)				0.202 (0.267)
Delinquency scale				0.003 (0.052)				-0.064 (0.053)
Sexual activity				-0.268 (0.235)				-0.531* (0.269)
Religious attendance				0.108 (0.129)				-0.134 (0.158)
Depression scale (W1)				0.230*** (0.029)				0.258*** (0.033)
Sample	Family	Family	Family	Family	Family	Family	Family	Family
Fixed-effects	None	School	Family	Family	None	School	Family	Family
Controls	Basic	Basic	Basic	Extra	Basic	Basic	Basic	Extra
n (individuals)	3032	3032	3032	3032	2513	2513	2513	2513

Note. All models without family fixed effects include the following set of control variables: age, gender, race/ethnicity, grade level, first-born child, mother's education, family income, and rural status. Family fixed effects models include the following set of control variables: age, gender, race/ethnicity, grade level, and first-born child. In all models without family fixed effects, robust standard errors are clustered at the school level. In family fixed effects models, robust standard errors are clustered at the family level.

\* p < 0.05;

\*\* p < 0.01;

\*\*\* p < 0.001.

**Table 6**  
Coefficients for the association between youth volunteering and years of schooling and log earnings

	Wave 4							
	Years of schooling				Log earnings			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Youth volunteering (voluntary)	0.794*** (0.071)	0.712*** (0.066)	0.312*** (0.086)	0.230** (0.082)	0.153*** (0.036)	0.140*** (0.035)	0.111* (0.055)	0.106* (0.053)
Youth volunteering (involuntary)	0.891*** (0.128)	0.857*** (0.137)	0.543*** (0.150)	0.466*** (0.137)	0.125* (0.061)	0.143* (0.059)	0.182* (0.091)	0.180* (0.089)
School problems				0.022 (0.029)				-0.029 (0.022)
College aspirations				0.094** (0.036)				0.026 (0.029)
Self-reported GPA				0.536*** (0.057)				0.065 (0.043)
School-year work				-0.027 (0.082)				0.103 (0.060)
Delinquency scale				-0.042* (0.018)				0.020 (0.014)
Sexual activity				0.049 (0.097)				0.169* (0.070)
Religious attendance				0.020 (0.047)				0.063 (0.039)
Self-esteem				0.010 (0.011)				0.015 (0.008)
Sample	Family	Family	Family	Family	Family	Family	Family	Family
Fixed-effects	None	School	Family	Family	None	School	Family	Family
<i>n</i> (individuals)	2513	2513	2513	2513	2109	2109	2109	2109

Note. All models without family fixed effects include the following set of control variables: age, gender, race/ethnicity, grade level, first-born child, mother's education, family income, and rural status. Family fixed effects models include the following set of control variables: age, gender, race/ethnicity, grade level, and first-born child. In all models without family fixed effects, robust standard errors are clustered at the school level. In family fixed effects models, robust standard errors are clustered at the family level.

\*  $p < 0.05$ ;  
 \*\*  $p < 0.01$ ;  
 \*\*\*  $p < 0.001$ .