Does More Education Promote Civic Engagement?

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Abstract:

Education has long been regarded as a predicator for a strong understanding of civics, implying that civic participation will increase with more education. In this work, we model the relationship between schooling and a broad range of civic outcomes by using data from the National Civic Engagement Survey (NCES I) of Spring, 2002. By using Child labor laws as instruments and controlling for a number of factors such as age, gender, and occupation status, we estimated the contribution education makes in promoting civic participation. Our results suggest that education has a positive impact on voting, volunteering, and citizens' group participation.

Keywords: education, civic engagement, voting

I. Introduction

Education has long been regarded as a powerful predicator in understanding civic participation. Decades of political science research suggest that education has a universally positive effect on all forms of civic engagement. An illustration of the positive social return of education is Milton Friedman (1955)'s argument:
"A stable and democratic society is impossible without widespread acceptance of some common set of values and without a minimum degree of literacy and knowledge on the part of most citizens. Education contributes to both. In consequence, the gain from the education of a child accrues not only to the child or to his parents but to other members of the society; the education of my child contributes to other people's welfare by promoting a stable and democratic society."

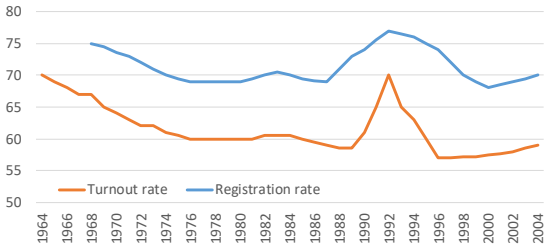
Converse (1972) also describes a tight link between education and civic participation by concluding that "education is everywhere the universal solvent, and the relationship is always in the same direction." Putnam (2000) reiterates that education is one of the most important predictors of many forms of civic participation – from voting to group membership, to chairing a local committee to hosting a dinner party to giving blood.

Following these theoretical contributions, a number of empirical studies have found a positive relationship between education and civic participation. Wolfinger and Rosenstone (1980) found that an additional year of schooling (K-16) is correlated with higher voter turnouts. More education is also associated with a larger amount of volunteer time given (Dye, 1980; Freeman, 1997). Helliwell and Putnam (1999) indicated that more education promotes social participations including community work and group memberships.

In light of the fact that education has long been regarded as significant to boost civic engagements and sustain democratic systems in both theoretical and empirical studies, it is ironic to identify the recent declining trends in political participations. The voter turnout rate in US presidential elections has fallen from a high of 69.3% in

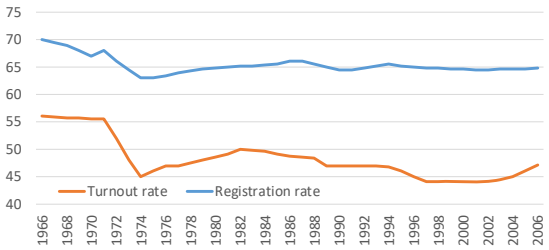
1964 to a low of 54.7% in 2000 according to the estimate of the U.S Census Bureau (Figure 1). In more recent years of 2008 to 2016, the rate has increased a bit, but still hovering below 60%. In midterm elections, the voter turnout rate has fallen from 55.4% in 1966 to 43.6% in 2006 (Figure 2). The trend of other kinds of civic involvement, like volunteering, is also slightly declining. Data from the U.S. Census Bureau and the Bureau of Labor Statistics indicated that in 2013, 62.6 million people who are over the age of 16 donated their talents and time to communities, schools and nonprofit organizations for public interests. But the volunteering rate, 25.4% in 2015, was lower than the 26.7% rate in 2006, and still lower than the 28.8% rate from 2003-2005.

Figure 1: Voter Turnout and Registeration Rates in Presidential Election, 1964-2004



Source: U.S. Census Bureau, Current Population Survey, November 2006.

Figure 2: Voter Turnout and Registeration Rates in Midterm Election, 1966-2006



Source: U.S. Census Bureau, Current Population Survey, November 2006.

Brody (1978) labeled the phenomenon of falling civic engagement in the face of rising education as the "paradox of participation". Among youngsters who generally have higher levels of education, the decline of voter turnout is more apparent. It is possible that education could reduce voter participation by promoting an awareness of voting as an essentially dramatic act with an infinitesimally small probability of influencing actual policy (Dee, 2004).

To resolve this paradox, recent studies attempted to investigate causal effect, instead of the association or relationship between the level of education and civic engagement. Gibson (2001), using data from a sample of twins, presented results showing that more education can reduce the amount of volunteer time donated. He concluded that the widely alleged positive correlation between years of education and the amount of volunteer time is just a correlation rather than a causal relationship.

Dee (2004) employs instrumental variables to predict the influence of education on civic outcomes. First, he uses the distance in miles from respondents' high school to the nearest junior and community colleges as an instrument on the assumption that respondents' geographic proximity to two-year college is unrelated with their civic participation, as respondents' geographic location is more or less randomly determined in term of civic participation. Second, he exploits changes in restrictive child labor laws across the United States and its impact on respondents' education. The restrictive child labor laws differ according to respondents' geographic location and thus provide the exogenous restriction on respondents' education, constituting a valid instrumental variable (Acemoglu and Angrist, 2000; Lleras-Muney, 2002). With the data drawing from High School and Beyond (HS&B) and the US General Social Survey, and using a two-stage regression model, Dee concluded that educational attainment, both at the post-secondary and the secondary levels, has a causal positive effect on most measures of civic engagement and attitudes.

Milligan, Moretti and Oreopoulus (2004) did a similar analysis as Dee by using both compulsory education and child labor laws as instrumental variables to identify the effect of education on civic engagement in the USA and the UK. They found a strong positive effect of years of schooling on both

voter registration and voter turnout in the USA. They further suggest causal positive effects of educational attainment on other forms of political participation, such as awareness of public events, the following of political campaigns in the news, the attending political meetings, and the discussing of political issues with friends.

Both Dee (2004) and Milligan, Moretti and Oreopoulus (2004) made great contributions to the literature. However, the HS&B dataset only allows Dee (2004) to predict civic returns at the post-secondary level. The Current Population Survey (CPS) that Milligan, Moretti and Oreopoulus (2014) used is limited to citizens who are registered voters.

This paper uses National Civic Engagement Survey (NCES I), Spring 2002, from Center for Information and Research on Civic Learning and Engagement (CIRCLE) to estimate the effect of schooling on a broad range of civic outcomes. One of the nice features of NCES I is that it is the first systematic and large national survey for measuring political and civic engagement of all ages. It also incorporates an abundance of civic indicators that provide us reliable measurements of civic participation, including political behaviors, attitudes and democratic values (see Appendix Table 1).

Similar to Dee (2004) and Milligan, Moretti and Oreopoulus (2004), this paper employs the variations in state child labor laws as an instrument. The instrument will address the confounding factors that would affect both education and civic engagement since it only affects education decisions, but has no direct impact on civic engagement. Child labor laws have also been previously and successfully used as instrumental variables in studying education's effect on labor market outcomes (Acemoglu and Angrist 2000; Lleras-Muney 2002). The study will add to the limited literature on studying the effect of education on civic engagement.

The remainder of the paper is organized as follows. Section II discusses the data source and variables used. Section III describes the OLS regression models and presents the associated results. The Instrumental Variable (IV) regression models and results are provided in Section IV. The final section concludes.

II. Data Source: CIRCLE National Civic Engagement Survey (NCES I), Spring 2002

NCES I was fielded from April 4, 2002 to May 20, 2002 and released on September 19, 2002. It included responses from 3,246 respondents aged 15 years and older on a maximum of 266 variables (see Appendix Table 1). Youths aged 15 to 25were oversampled as a result of the design. NCES I contained 19 core civic activities ranging from voting to volunteering to protesting, as well as political attitudes, voices and behaviors. It also provided comprehensive information on socio-economic characteristics of the respondents, the characteristics of the households and communities they belong to.[1]

The sample, after excluding observations with missing information and restricting respondents to be 23 years and older, amounted to 2498 observations. Since more than half of respondents in the sample were 23-37 years old due to the over-sampled youth, sampling weight is used for all the analyses in this paper.

Among the 2498 respondents, 37.63% graduated from college, 28.19% had experienced some years of post-secondary education, 26.02% had finished high school, and 8.16% had not finished high school. Education, therefore, was categorized into 6

[1] For interested readers, please refer to NCES I and Appendix Table 1 for more details.

levels: below high school, some high school, high school graduate only, some college, college graduate, and post-college.

This paper examines the effect of education on four types of civic behavior:
Voting: whether voted in the last 12 months;
Volunteering: whether spent time participating in community services or volunteer activities;
Group Membership: whether joined as a member of citizens' groups;
Protesting: whether participated in protesting in the last 12 months.

Detailed definitions of civic engagement and other selected variables are given in Table 1 in Appendix, along with descriptive statistics. The variables controlled in the analyses can be categorized into demographics which consist of respondent's race, gender and the state he lives; personal characteristics which includes income, occupational status and marital status; family background that contains parents' origins, mother's education, family income, how often politics is discussed in the family and how often family members volunteer in community services and other activities; government and community factors including respondent's evaluation of his or her community and state laws on course requirements in civics.

III. Estimation Methods

This paper first estimates the relationship between education and civic participation using a probit regression model, as illustrated by Equation (1) below:

$$Y_i = \beta_0 + \beta_1 E_i + \sum_{p=1}^{P} \beta_{pi} D_{pi} + \sum_{q=1}^{Q} \beta_{qi} P_{qi} + \sum_{r=1}^{R} \beta_{ri} F_{ri} + \sum_{s=1}^{S} \beta_{si} C_{si} + \varepsilon_i \quad (1)$$

where Y_i and E_i stand for respondent i's civic engagements and education. p indicates the number of demographic variables; p, q, r, and s indicate the number of variables in the personal characteristics, the family background, and the community and government factors respectively.

If all of the factors that can potentially affect civic engagements are controlled, Equation (1) will yield a consistent estimate of the effect of education on civic participation, *ceteris paribus*. Heteroscedascity is corrected through robust standard errors (White, 1980).

Table 2 reports the probit regression results on regular voting. Column (1) shows a statistically significant positive relationship between voting and education when no variable is controlled. The positive relationship becomes smaller and smaller as more and more control variables are included into Columns (2), (3) and (4). [2] Column (4) indicates that additional education increases the probability of voting by 2.5% when all the available variables are controlled. Male is more likely than female to vote. Age makes a difference in voting too – older people tends to vote more. Black people is less likely to vote, but this relationship disappears when family and community characteristics are controlled. It is also consistent with the literature to find that people whose parent(s) were born in the US is more likely to vote.

Table 3 shows that additional education significantly increases the probability of volunteering by about 4.0%. However, different from results on voting, males are less likely, albeit not statistically significant at the 5% level, to volunteer than females; and age appears to be a non-factor. The only significant predictor is full-time job, where people holds a full-time job is less likely to

[2] Column (2) includes 8 demographics variables and 13 personal characteristics variables. Column (3) adds 24 variables of family backgrounds. Column (5) adds 5 community influence variables.

volunteer.

Education is associated with increasing probability of group membership by 4.3% and with increasing probability of protesting by 0.5%.[3]

IV. Instrumental Variable Estimates

The positive estimates of Equation (1) may overstate the "true" impact of education on civic engagement, and may even be wrong in direction, since they may capture the effects of unobserved and/or uncontrolled characteristics that affect both education and civic engagement. For example, a person who is born with innate civic capabilities, which cannot be observed and controlled, may tend to participate more in civic activities and stay longer in school.

This paper addresses this issue by using child labor laws as instruments. Child labor laws in each state regulate the minimum and maximum ages at which children must attend school, the minimum years of schooling that students could drop out, the minimum age when students can work and the minimum education students must have before working. Data from Child labor laws are merged with NCES I data based on the states the respondents resided in when they were 14 years old and the state of birth. Following Acemoglu and Angrist (2000), a variable "Clabor", the instrument, is created to capture the minimum years of schooling required before work is permitted and the difference between the minimum age at which children could drop out and the maximum age at which children must enroll into school:

$$CLabor = \max\{work_{sch}, work_{age} - enroll_{age}\}$$

Employing "Clabor", the impact of education on civic engagement can be estimated using a two-stage least square (2SLS) model. The first-stage can be written as Equation (2):

$$E_i = \alpha_0 + \alpha_1 I_i + \sum_{p=1}^{P} \alpha_{pi} D_{pi} + \sum_{q=1}^{Q} \alpha_{qi} P_{qi} + \sum_{r=1}^{R} \alpha_{ri} F_{ri} + \sum_{s=1}^{S} \alpha_{si} C_{si} + \epsilon_i \quad (2)$$

where E_i, p, q, r, and s are defined as in equation (1) and I_i represents the instrument "Clabor".

Equation (3) is the second stage model:

$$Y_i = \gamma_0 + \gamma_1 E_i + \sum_{p=1}^{P} \gamma_{pi} D_{pi} + \sum_{q=1}^{Q} \gamma_{qi} P_{qi} + \sum_{r=1}^{R} \gamma_{ri} F_{ri} + \sum_{s=1}^{S} \gamma_{si} C_{si} + \theta_i \quad (3)$$

with Y_i, p, q, r, and s as defined before. E is replaced E_1, the predicted education of the first stage Equation (2).

Table 4 shows the results of the first stage regression of Equation (2). Column (1) suggests that one year of schooling increase required by Child labor laws is, on average, associated with a statistically significant increase in respondents' education. However, the estimate is sensitive to family background controls. When controlling for all family background, the result suggests that Child labor laws have no statistically significant predictive power on education. These results indicate that the influence of Child labor laws may not be sufficiently large with the NCES I sample, making the instrument to be weak for the second stage estimation.

In Table 5, we present 2SLS estimates of the effect of education on each measure of civic engagement. None of the 2SLS results are statistically significant, suggesting that there is no positive effect of education on civic engagement. Although this finding is consistent with the "paradox of participation" discussed earlier, it is hard to jump to a conclusion, as the statistical non-significance could be due to the weak instrument (i.e., the instrument variables are only weakly correlated with education) from the first stage estimation.

V. Conclusions and Discussion

In this paper, we conducted empirical analyses on the relationship between

[3] The tables of these results are available from the authors by request.

education and civic engagement, including regular voting, volunteering, group membership, and protesting. Positive relationships are found between education and each of the civic engagement measures through probit model regressions.

However, the study finds no convincing evidence that these positive relationships are causal. Although Dee (2004) and Milligan, Moretti and Oreopoulos (2004) present a strong causal relationship between education and civic participation, we, by employing similar methodology, could not find the statistically significant impact of education on any of the four measures of civic engagement.

One limitation of this study is that NCES I data are self-reported. It is possible that self-reporting bias is severe enough to threaten the validity of the dataset. Secondly, there are mismatch problems when merging NCES I with Child labor laws dataset. NCES I recorded the state where respondents lived when the survey was done. But the Child labor laws should be applied to respondents on the basis of the state when they were 14 years old. As a consequence, the instrument constructed could be inaccurate to some extent.

ACKNOWLEDGMENT
We thank Barbara Helms for providing helpful comments and editing the paper.

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Appendix

Table 1: Definition & Summary Statistics of Selected Variables

Variable	Definition	Mean & Std. Dev.
Civic Engagement		
Voting	Variable equals 1 if a respondent indicates Yes, and 0 otherwise	0.49 (0.50)
Volunteering	Variable equals 1 if a respondent indicates Yes, and 0 otherwise	0.35 (0.48)
Group Membership	Variable equals 1 if a respondent indicates Yes, and 0 otherwise	0.66 (0.47)
Protesting	Variable equals 1 if a respondent indicates Yes, and 0 otherwise	0.04 (0.20)
Demographics		
Gender	Variable equals 1 if a respondent is a female, and 0 otherwise	1.54 (0.50)
High School Education	Variable equals 1 if a respondent receives high school or higher level of education, and 0 otherwise	0.98 (0.14)
Personal Characteristics		
Born in the US	Variable equals 1 if a respondent was born in the US, and 0 otherwise	0.92 (0.27)
Martial status	Variable equals 1 if a respondent has married, and 0 otherwise	0.59 (0.49)
Occupation status	Variable equals 1 if a respondent has full-time job, and 0 otherwise	0.59 (0.49)
Family Background		
Parents born in the US	Variable equals 1 if a respondent's parents were born in the US, and 0 otherwise	0.84 (0.37)
Often talk politics	Variable equals 1 if a respondent's family often talk politics when he was growing up, and 0 otherwise	0.20 (0.40)
Community Characteristics & Government Intervention		
Community Rate	4 dummies taking respectively the value 1 if the community is rated as (1) Excellent, (2) Good, (3) Only fair, (4) Poor, and 0 otherwise	
Constitution course	Variable equals 1 if the Constitution course is specifically required, and 0 otherwise	0.09 (0.29)

Table 2: OLS Results for Regular Voting

	Probit (1)	Probit (2)	Probit (3)	Probit (4)
Years of Education	0.032	0.034	0.026	0.025
	(5.73)**	(9.42)**	(6.52)**	(6.25)**
Male		0.066	0.063	0.061
		(3.44)**	(3.29)**	(3.20)**
Age		0.012	0.012	0.012
		(14.42)**	(14.15)**	(14.06)**
Black		-0.143	-0.112	-0.085
		(2.04)*	(1.59)	(1.21)
Born in the US		0.242	0.317	0.328
		(6.01)**	(6.53)**	(6.79)**
Married		0.017	-0.001	-0.015
		(0.10)	(0.01)	(0.09)
Fulltime		0.037	-0.005	-0.027
		(1.16)	(0.02)	(0.13)
Parents born in the US			0.003	-0.061
			(0.01)	(0.28)
Often talk Politics			0.109	0.127
			(1.20)	(1.40)
Poor Community				-0.072
				(0.43)
Constitution course				0.075
				(2.36)*
Others	None	(1)	(2)	(3)
Constant	0.341	-0.724	-0.471	-0.521
	(11.93)**	(3.67)**	(1.72)	(1.67)
Observations	2498	2498	2498	2498
R-squared	0.013	0.17	0.20	0.21

Note: Data draw from NCES I. There are 2498 observations. Regressions are calculated with robust standard errors and are corrected for heteroscedascity. Coefficients with t value in parentheses.

(1) Other controls include race (5 dummies), religious (5 dummies), martial status (3 dummies), occupation status (4 dummies);

(2) Besides variables in (1), also including mother's education (5 dummies), parents' country of origins (3 dummies), family income (9 dummies), talking politics at home (5 dummies), family member's volunteering (2 dummies);

(3) Besides variable in (1) & (2), also including community rating (5 dummies).

* Significant at 5% level;

** Significant at 1% level.

Table 3: OLS Results for Volunteering in the last 12 months

	Probit (1)	Probit (2)	Probit (3)	Probit (4)
Education	0.041	0.048	0.040	0.040
	(11.78)**	(13.54)**	(10.48)**	(10.39)**
Male		-0.030	-0.031	-0.032
		(1.58)	(1.68)	(1.70)
Age		-0.001	-0.002	-0.002
		(1.61)	(1.92)	(1.88)
Black		0.025	0.019	0.035
		(0.36)	(0.28)	(0.51)
Born in the US		0.066	0.069	0.074
		(1.68)	(1.46)	(1.57)
Married		0.148	0.167	0.148
		(0.92)	(0.95)	(0.84)
Fulltime		0.013	-0.475	-0.477
		(0.40)	(2.26)*	(2.26)*
Parents born in the US			0.400	0.399
			(1.93)	(1.92)
Often talk politics			0.093	0.099
			(1.05)	(1.11)
Poor Community				-0.273
				(1.68)
Constitution course				-0.005
				(0.15)
Others		(4)	(5)	(6)
Constant	-0.239	-0.582	-0.464	-0.229
	(-4.63)**	(3.03)**	(1.75)	(0.75)
Observations	2498	2498	2498	2498
R-squared	0.10	0.10	0.13	0.13

Note: Data draw from NCES I. There are 2498 observations. Regressions are calculated with robust standard errors and are corrected for heteroscedascity. Coefficients with t value in parentheses.

(4) Other controls include race (5 dummies), religious (5 dummies), martial status (3 dummies), occupation status (4 dummies);

(5) Besides variables in (1), also including mother's education (5 dummies), parents' country of origins (3 dummies), family income (9 dummies), talking politics at home (5 dummies), family member's volunteering (2 dummies);

(6) Besides variable in (1) & (2), also including community rating (5 dummies).

* Significant at 5% level;

** Significant at 1% level.

Table 4: Estimates of the Effects of Compulsory Schooling Laws on Education

Dependent Variable	(1)	(2)	(3)	(4)
Education	0.0114*	0.0114**	0.0055	0.0054
	(0.0053)	(0.0054)	(0.0054)	(0.0054)
Demographic Control	no	yes	yes	yes
Family Control	no	no	yes	yes
Community/Government Control	no	no	no	yes

Coefficients and standard errors are in parentheses.
* significant at 5% level;
** significant at 1% level.

Table 5: IV Estimates of the Impact of Education on Civic Participation

Dependent Variable	IV (1)	IV (2)	IV (3)	IV (4)
Voting	-0.4152	-0.3699	-0.4246	-0.4076
	(0.2423)	(0.2396)	(0.4871)	(0.4434)
Volunteering	-0.0383	0.0113	-0.0988	-0.1191
	(0.0985)	(0.0989)	(0.2323)	(0.2305)
Group	-0.2168	-0.1838	-3943	-0.3943
	(0.1589)	(0.1574)	(0.4416)	(0.4681)
Protesting	0.0793	0.0731	0.1100	0.1061
	(0.0533)	(0.0556)	(0.1316)	(0.1228)
Demographic Control	no	yes	yes	yes
Family Control	no	no	yes	yes
Community/Government Control	no	no	no	yes

Coefficients and standard errors are in parentheses.
* significant at 5% level;
** significant at 1% level.