

LETTER

Civic Education in High School and Voter Turnout in Adulthood

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Abstract

This article examines the effect of high school civic education on voter turnout in adulthood by integrating extensive academic transcript data on social studies and civic coursework into a large-scale, longitudinal survey of a nationally representative sample of adolescents. In an initial series of regression models, civics courses appear to have an effect on turnout in adulthood. However, after accounting for individual and family attributes, civic education has a fairly limited effect on turnout, though several measures have statistically significant effects even in the presence of controls. Interestingly, the study finds no support for the idea that high school courses that focus on service learning, civic skills development or political issues increase turnout in adulthood, which is contrary to expectations from the resource model of participation. After subjecting the civic effects that persist after accounting for controls to additional scrutiny by using family fixed-effects models that account for all observed and unobserved influences shared by siblings in the same family (for example, socialization, predispositions, etc.), the evidence suggests that there is a null relationship between civic education and turnout; the best-case scenario is that any civic education effects that do exist are likely very small. The idea that additional civics training will help to substantially elevate voter turnout appears to be overly optimistic.

Keywords: civic education; voter turnout; political participation; voting

Political scientists, civic groups, policy makers and educators have long explored how to increase voter turnout (and other forms of civic engagement). One approach to facilitating political participation has been to focus on the development and delivery of civic education – classes in civics and social studies that ‘teach students the content knowledge, intellectual skills and civic values necessary for fulfilling the duties of citizenship in a participatory democracy’ (National Council for the Social Studies, 2018).¹ A number of US states see voting as such an important civic activity that they explicitly mention it in their statutes on education. For example, an Illinois statute says that ‘Instruction shall be given in all such schools and institutions in the method of voting at elections by means of the Australian Ballot system and the method of the counting of votes for candidates.’² Similarly, in the state of Iowa a statute requires that high school students take at least five units of social studies ‘including instruction in voting statutes and procedures, voter registration requirements, the use of paper ballots and voting machines in the election process, and the method of acquiring and casting an absentee ballot’.³ Presumably, the goal of such legislation is to make sure that young people are well prepared to

¹“National Council for the Social Studies.” 2018. Retrieved from <https://www.socialstudies.org> (accessed 1 April 2020).

²(105 ILCS 5/27-3) from Ch. 122, par. 27-3.

³Iowa Code §256.11 from Section 5, subsection b.

vote when they reach the voting age, with the hope that knowledge of the voting process provides a foundation for engagement.⁴ It is not just state governments that view civic education as important to fostering political participation. Prominent public figures such as former Supreme Court Justice Sandra Day O'Connor have become fierce advocates for civic education. In a recent public letter, O'Connor proclaimed that 'It is my great hope that our nation will commit to educating our youth about civics, and to helping young people understand their crucial role as *informed, active citizens* in our nation.'⁵ She went on to say that 'To achieve this, I hope that private citizens, counties, states, and the federal government will work together to create and fund a nationwide civics education initiative.'

Justice O'Connor is certainly not the first to highlight the necessity and value of civic education. Indeed, the *civic education hypothesis* suggests that if we teach students about government, politics and civic obligations early in life, they are likely to carry the lessons they have learned with them as they progress through life.⁶ Ultimately, the hope is that students who take classes in civics and social studies will become habitual participators – voting in elections, contributing to their communities and playing an active role in the democratic process. But do civics and social studies classes 'work' as intended? In other words, does exposure to civic education early in life have *enduring* effects on civic engagement when people reach adulthood?

Political science and other disciplines have investigated the impact of civic education; these studies date back at least 50 years (Hyman 1959; Langton and Jennings 1968). After a downturn in research on civic education, likely driven by early studies that showed it was largely ineffective, recently there has been renewed interest in whether schools and civic education influence engagement in adulthood (Andolina et al. 2003; Campbell 2006; Campbell, Levinson and Hess 2012; Neundorf, Niemi and Smets 2016). The question of whether civic education 'does its job' remains an open one. Indeed, while some scholars have noted that civic education has no effect on participation later in life (Langton and Jennings 1968; Manning and Edwards 2014a; Manning and Edwards 2014b), others have reported that it has positive effects on engagement (Andolina et al. 2003; Bachner 2010; Campbell 2008; Celio, Durlak and Dymnicki 2011; Galston 2001; Green et al. 2011; Neundorf, Niemi and Smets 2016; Niemi and Junn 2005; Syvertsen et al. 2009). Understanding whether civics and social studies classes actually contribute to civic engagement is an important question, given the fact that every year schools spend vast amounts of time and resources on civic education. If the civics training that is typically administered in schools across the county contributes little to increasing civic engagement, it may be worth looking for additional interventions or mechanisms that foster engagement. However, if civic education *does* yield enduring effects, it may be beneficial to expand this type of training in schools and to identify exemplars of civic education that could be implemented on a widespread basis.

In this letter, we make two contributions to the literature on civic education and voter turnout. First, we examine whether civic education influences voter turnout in adulthood using a rich, new dataset. We integrate extensive academic transcript data on social studies and civic coursework into a large-scale, longitudinal survey of a nationally representative sample of adolescents. This allows us to examine (1) whether a student's *total* amount of civic education influences his or

⁴Some cities have also focused on the importance of civics and voter turnout. For example, the New York City Department of Education has developed a Civics for All initiative, which includes Civics Week (and a student voter registration drive during that week). The department explains: 'Civics Week includes efforts to get every eligible young person ready to vote and to encourage all young people – regardless of eligibility – to understand that their voice matters and that they can create change as active participants of their community.' For additional details, see: <https://www.schools.nyc.gov/learning/in-our-classrooms/subjects/civics-for-all>.

⁵Emphasis added. https://www.supremecourt.gov/publicinfo/press/Public_Letter_from_Sandra_Day_OConnor_102318.pdf.

⁶Hillygus (2005), for example, notes that '...education – specifically a civic education – expands the capacity of citizens to engage in self-rule by teaching citizens the behaviors and knowledge necessary for identifying political preferences, understanding politics, and pursuing political interests' (28).

her later civic engagement and (2) whether some *types* of courses are more effective at promoting engagement in adulthood than others. Many previous studies have employed self-reported measures of exposure to civics training (for example, Andolina et al. 2003; Langton and Jennings 1968; Neundorf, Niemi and Smets 2016; Niemi and Junn 2005), but our use of transcript data avoids having to rely on participants' recall of the civic education they were exposed to in high school. Another advantage of our dataset is that we have information on voter turnout at multiple points *after* people leave high school. One of our turnout measures was collected at least six years after students left high school, which facilitates a longer-term analysis of the effects of civic education than many previous studies have been able to provide. Some scholars have relied on cross-sectional data to study the effects of civic education (for example, Andolina et al. 2003), but longitudinal data are necessary for understanding the effects of civic education at different points in the life cycle. While many studies have examined the effects of civic education, most have focused on attitudes rather than behaviors (see, for example, Andolina et al. 2003; Campbell 2008; Campbell and Niemi 2016; Green et al. 2011; Niemi and Junn 2005; Syvertsen et al. 2009). Few studies have used voter turnout as the dependent variable (see, for example, Bachner 2010; Kiouisis and McDevitt 2008; Pasek et al. 2008) given the limited number of datasets containing measures of civic education *and* voter turnout.

Our second contribution is that we address an empirical complication that arises when studying the effect of civic education on turnout – that the relationship could be confounded by factors that influence both variables. On a theoretical level, the resource model of participation leads to the expectation that exposure to civic education relatively early in life will have a positive effect on voter turnout in adulthood. According to Brady, Verba and Schlozman (1995), people are more likely to participate in political life if they learn, work and serve in institutions that allow them to acquire and develop politically relevant resources (for example, the ability to communicate, an interest in politics, etc.). Brady, Verba and Schlozman (1995) focus on three measures designed to capture the development of resources and skills – years of education, language abilities and participation in high school government – but it also seems reasonable to suggest that civics and social studies classes are an important place where people can gain and refine skills related to politics. One important concern that arises when studying the effect of civic education on turnout is that the relationship could be confounded by factors that influence *both* civic education and turnout, causing a spurious association. Of course, one possible way to overcome this concern would be to randomly assign civic education. This is generally quite costly and difficult, which is why very few studies have used this approach.⁷

While we do not have access to experimental data on civic education and voter turnout, we exploit two unique features of our dataset to obtain some leverage on the issue of confounding. First, our dataset contains a wide array of individual and family measures, which allows us to examine the effect of civics in the context of models that control for likely confounders such as cognitive ability, parental civic engagement, parental income and parental educational attainment. Many previous studies on civics have not been able to control for these types of individual and family attributes simultaneously. Secondly, because our dataset contains a large sample of siblings, we are able to develop family fixed-effects models. In these models, we compare the turnout of siblings who have different levels of civic education but share the same family background. This allows us to replicate some aspects of a controlled experiment, with siblings from the same family functioning, essentially, as each other's control group. Importantly, by using

⁷Even some of the most recent research (e.g., Campbell and Niemi 2016) on the effects of civic education has not used experimental designs. One notable exception is Green et al. (2011), who conducted a randomized experiment across fifty-nine schools in one state to investigate the effect of civics curriculum on students' awareness and understanding of constitutional rights and civil liberties. They randomly assigned students to either a 'Bill of Rights for Real Life' enhanced civics course or a control group in which civics was taught in its usual manner. As dependent variables, Green et al. (2011) use civil liberties knowledge, general political knowledge and support for civil liberties; they did not assess the effect of civic education on voter turnout, which is our interest here.

this approach, we are able to estimate how much of the relationship between civic education and turnout is attributable to unobserved influences that are *shared* by siblings in the same family (for example, shared genes, child-rearing practices, political socialization, etc.).⁸

Data and Measures

In order to examine the relationship between civic education in high school and civic engagement in adulthood, we make use of the National Longitudinal Study of Adolescent to Adult Health (Add Health). Add Health is a school-based longitudinal study of a nationally representative sample of adolescents who were in grades 7–12 in the United States in 1994–95. Four waves of the Add Health study have been completed: Wave I (1994–1995), Wave II (1996), Wave III (2001–2002) and Wave IV (2008). Although the study was developed to explore the causes of health-related behavior of adolescents and their outcomes in young adulthood, it contains some variables of interest to political scientists, such as measures of voter turnout. The dataset also includes a range of variables that can be used as controls, such as cognitive ability, demographics and parental attributes.

Although the Add Health study is valuable on its own, the *Academic Transcript Social Studies and Civic Coursework* dataset was recently released as an auxiliary file. This dataset consists of academic transcript data related to social studies and civic coursework for those who participated in Wave III of the Add Health Study. By coding courses using the definition of social studies offered by the National Council on Social Studies and course content that is supported in the literature as important for future civic participation, this dataset provides an opportunity to examine the effect of civic education on outcomes in adulthood. The Adolescent Health and Academic Achievement (AHAA) study collected high school transcripts for approximately 12,000 Add Health participants who were part of the Wave III sample.⁹ AHAA used the Classification of Secondary School Courses (CSSC) to code these transcripts.¹⁰ AHAA followed the procedures used by the National Center for Education Statistics to code transcripts and trained coders using training materials from the 2000 National Assessment of Educational Progress High School Transcripts Study. The AHAA coders used extensive information on course content from schools to code transcripts. For each course, coders identified the primary content of the course listed on the transcript.¹¹ The following categories were used: experiential learning, service learning, civic skills development, social and political issues/problems of society, historically marginalized groups, American history, international/multicultural studies and political

⁸We note that sibling designs, like the one used here, control for half of the effect of genetic confounding. To completely control for genetic effects, we would have to use a monozygotic twin subsample, which is quite small in our dataset and would thus substantially reduce the number of observations.

⁹Approximately 91 per cent of Wave III respondents signed a valid transcript release form and high school transcripts were collected for most respondents.

¹⁰For more information, see: <https://nces.ed.gov/surveys/hst/courses.asp>. The CSSC was designed in 1982 for High School and Beyond, and was used in the National Educational Longitudinal Study of 1988, and all of the National Assessment of Educational Progress High School Transcripts Studies.

¹¹Four coders were used to assign social studies course categories. Generally, course category codes were assigned based on the code assigned by the majority of coders. If there was disagreement among coders, preference was given to coders with specific knowledge of K-12 social studies curricula. Inter-rater reliability was assessed in two ways. First, Cohen's kappa was calculated for each pair of raters, and the mean of these estimates was calculated to provide an overall index of inter-rater agreement. Secondly, following Landis and Koch (1977), a kappa-like statistic was calculated across all coders, providing an overall index of agreement, as well as for each course category, providing an index of inter-rater agreement for each code. Analyses of inter-rater reliability indicated substantial agreement among coders in all course categories. Both methods of assessing inter-rater agreement or reliability indicated a substantial agreement between raters overall (0.61–0.80). Inter-rater agreement by course category ranged from substantial agreement (0.61–0.80) to near perfect agreement (>0.81).

knowledge development.¹² If a social studies/civics course could not be grouped into one of these eight categories, it was classified as ‘other humanities/social science’. Because each course that a student took was coded, we were able to develop measures of the overall number of social studies/civics classes taken during high school and of the number of classes taken *within* each of the categories described above. Thus we have a general measure of the extent of participants’ exposure to civic education and a series of more nuanced measures that capture the *types* of courses (and how many of each type) they took in high school.

Merging the transcript data into the Add Health study provides an opportunity to examine the effect of civic education on voter turnout in adulthood. Indeed, the Add Health study asked respondents a number of questions about voting. In Wave III, participants were asked ‘Did you vote in the most recent presidential election?’ (we code yes = 1 and, no = 0). In Wave IV, participants were asked ‘How often do you usually vote in local or statewide elections?’ (always = 4, often = 3, sometimes = 2, never = 1). We use these two items as our dependent variables in the analyses that follow.¹³

Before proceeding, it is important to note that self-reported measures of turnout are likely to be somewhat ‘noisy’ measures of participation. Indeed, scholars have long been concerned about the accuracy of measures of voting behavior, and there is now a body of research on over-reporting turnout. For instance, Karp and Brockington (2005) found that some survey respondents may intentionally misreport that they voted because they want to be seen as complying with the social norm that voting in elections is desirable. In the context of this study, one concern is a potential link between family influences and self-reported turnout. For example, if self-reports are artificially high because of social desirability, it is possible that over-reporting is also due to family influences (that is, voting is valued more in some homes than others, which in turn leads to over-reporting and might explain why siblings socialized in the same home have comparable levels of self-reported turnout). However, if children are exposed to the same within-family norms related to voting, this would be captured by our family fixed-effects. Indeed, as we describe in more detail below, family fixed-effects models capture *all shared observed and unobserved influences within families* (for example, child-rearing practices, political socialization, shared genes, etc.). Overall, our goal in this article is not to resolve the debate about self-reported turnout measures. After all, we only have one type of turnout measure (self-reported), so we cannot compare the performance of different turnout measures in our models. However, we acknowledge that self-reports are imperfect measures of political participation. Although it could be useful to have validated measures of voter turnout (with additional measures, we could replicate our models across different dependent variables), Add Health has never validated its turnout measures. In addition, some studies have found that even validated turnout measures

¹²Experiential learning courses focus on ‘learning by doing’. The content of these courses is active and participatory. Courses include simulations, role playing, field trips and field experiences. Service learning includes courses that combine classroom instruction with community service to address a need in the community. Civic skills development includes courses that focus on developing intellectual and participatory civic skills. Intellectual skills include critical thinking, perspective taking, interpreting and critiquing media, expressing opinions and identifying public problems. Participatory skills include public speaking, using electoral and non-electoral means to express political opinions, and working in groups. Social and political issues/problems of society includes courses that focus on contemporary social and political issues and current events. Historically marginalized groups includes courses that focus on racial and ethnic minorities and women in the United States. American history includes courses that focus on the social, political and economic development of the United States. The category includes survey courses, as well as courses focused on particular time periods or regions. International/multicultural studies includes courses that focus on the history, society, politics, economy or culture of geographic regions outside the United States. This category includes courses focused on international affairs and global issues. Finally, political knowledge development includes courses in government, political science, and public policy that are focused on developing knowledge of principles, procedures, processes, institutions, rights and other information about the political system.

¹³We note that there is a moderate correlation between our two turnout measures, $r = 0.43$, $p < 0.001$, which were collected about seven years apart.

seem to suffer from severe problems.¹⁴ Ultimately, we hope future studies will replicate this study using other datasets and different turnout measures.

An Initial Look at the Effect of Civic Education on Turnout

One obvious concern associated with examining the effect of civic education on voter turnout is that some students might choose to pursue more civic education than others. For example, parents who are civically engaged might encourage their children to seek out civics and social studies classes. Alternatively, some students might be predisposed to enjoy political and social issues because they like cognitive stimulation. As a consequence, these students may opt to enroll in more civics and social studies classes than their counterparts. While variables measuring civic education might appear to have an effect on voter turnout, they may actually be capturing unmeasured variables that are correlated with civic education and that also predict voter turnout (for example, parental socialization). As an initial way of addressing confounding, we develop models that include the measures of civic education described above as well as a wide range of control variables that capture individual and family attributes that should influence voter turnout and that might also be correlated with civic education. We control for respondent sex, age, race/ethnicity, frequency of religious attendance and cognitive ability. We also control for family background/experiences by integrating measures of parental education (mother's highest level of education), parental civic engagement (mother's participation in a civic group or club) and parental income.¹⁵ Lastly, we include a measure of the respondent's highest level of education at the time when turnout is measured (either Wave III or Wave IV). This measure is designed to capture selection into or out of higher education after high school ends (Henderson and Chatfield 2011; Kam and Palmer 2008).

An initial look at the effects of civic education on voter turnout is presented in Table 1, which displays eight different models. For each dependent variable, we show the effect of civic education without control variables and then with controls, which investigates how the effects change after accounting for background characteristics.¹⁶ Before proceeding, it is worth noting that because Table 1 entails multiple tests, it is valuable to correct the significance level to account for multiple testing. Here, we use the Benjamini-Hochberg procedure.¹⁷ The basic idea behind this procedure is to order m p-values and then find the largest p-value that satisfies $p_k \leq (k/m)\alpha$. This test and all tests with smaller p-values are declared statistically significant. Since we have two different dependent variables and there are twenty tests (civics measures) for each dependent variable, we implemented the Benjamini-Hochberg procedure on the twenty civics p-values in the Wave III models (Models 1, 2, 5 and 6 in Table 1) and then on the twenty civics p-values in

¹⁴For instance, Berent, Krosnick and Lupia (2016) 'challenge the notion that the practice of 'turnout validation' offers a means of measuring turnout that is more accurate than survey respondents' self-reports' (597).

¹⁵Mothers were surveyed in the parental component of the Add Health study because research suggests that they tend to have more information about their children's health than fathers. Since the primary goal of the study was to learn about health, this methodological choice makes sense.

¹⁶We estimate the models shown in Table 1 using linear regression (to make the table comparable to the family fixed-effects models below). The Appendix reports the results of robustness checks (using different estimators). In the Appendix, we also estimate logistic regression models (when we use the Wave III measure, which is dichotomous) and ordered logistic regression models (when we use the Wave IV measure, which is a 4-point ordinal measure). Comfortingly, the models are very similar when we compare the results across different model types.

¹⁷This procedure controls for the false discovery rate (the expected proportion of false discoveries among all discoveries). An alternative correction procedure is the Bonferroni correction, but scholars have shown that this correction is too extreme (see, e.g., Coppock 2015). If we used the Bonferroni correction in Table 1, the corrected p-value for each set of models would be 0.05/20 or 0.0025 (0.05 is the usual significance level and 20 is the number of civics courses examined for each set of dependent variables), which would be applied to every civics p-value in the table. Thus, in the models with controls (Models 2, 4, 6 and 8), three of the civics coefficients would be significant using this correction (only those with p-values of $p < 0.001$).

Table 1. Effect of civic education on voter turnout in adulthood

	1 W3 b/s.e.	2 W3 b/s.e.	3 W4 b/s.e.	4 W4 b/s.e.	5 W3 b/s.e.	6 W3 b/s.e.	7 W4 b/s.e.	8 W4 b/s.e.
Total civics/SS courses	0.013*** (0.002)	0.009*** (0.002)	0.024*** (0.004)	0.012** (0.004)				
Experiential learning					0.037** (0.013)	0.033** (0.012)	0.126*** (0.030)	0.111*** (0.029)
Service learning					-0.009 (0.006)	0.001 (0.005)	-0.020 (0.014)	0.004 (0.013)
Civic skills development					0.015* (0.007)	0.001 (0.007)	0.031 (0.018)	0.001 (0.017)
Political issues					0.005 (0.013)	0.009 (0.012)	0.002 (0.031)	0.021 (0.029)
Marginalized groups					0.044*** (0.013)	0.035** (0.013)	0.065 (0.035)	-0.004 (0.034)
American history					0.016*** (0.005)	0.004 (0.004)	0.030** (0.011)	0.006 (0.011)
Multicultural/International					0.019*** (0.005)	0.014*** (0.004)	0.042*** (0.011)	0.029** (0.011)
Political knowledge					0.015** (0.006)	0.017** (0.006)	-0.001 (0.015)	0.004 (0.014)
Other social science					0.013** (0.004)	0.004 (0.004)	0.030** (0.010)	0.008 (0.010)
Male		-0.006 (0.010)		-0.080** (0.026)		-0.007 (0.010)		-0.080** (0.026)
Age		0.015*** (0.003)		0.047*** (0.007)		0.015*** (0.003)		0.048*** (0.007)
Education		0.041*** (0.003)		0.099*** (0.007)		0.041*** (0.003)		0.098*** (0.007)
Black		0.097*** (0.014)		0.346*** (0.034)		0.090*** (0.014)		0.346*** (0.035)
Hispanic		-0.013 (0.016)		-0.088* (0.040)		-0.015 (0.016)		-0.097* (0.040)
Asian		-0.134*** (0.021)		-0.301*** (0.053)		-0.130*** (0.021)		-0.305*** (0.053)
Native American		-0.023 (0.024)		-0.002 (0.061)		-0.026 (0.024)		-0.007 (0.062)
Parental education		0.014*** (0.003)		0.026*** (0.006)		0.014*** (0.003)		0.026*** (0.006)
Parental civic engagement		0.033* (0.015)		0.103** (0.036)		0.033* (0.015)		0.104** (0.036)

Parental income		0.000*** (0.000)		0.000 (0.000)		0.000*** (0.000)		0.000 (0.000)
Religiosity		0.035*** (0.003)		0.067*** (0.007)		0.035*** (0.003)		0.068*** (0.007)
Cognitive ability		0.003*** (0.000)		0.007*** (0.001)		0.003*** (0.000)		0.007*** (0.001)
Constant	0.357*** (0.014)	-0.948*** (0.079)	2.234*** (0.034)	-1.161*** (0.202)	0.344*** (0.015)	-0.965*** (0.080)	2.216*** (0.038)	-1.172*** (0.203)
N	8,496	8,496	7,506	7,506	8,496	8,496	7,506	7,506
Adj R ²	0.0076	0.1076	0.0045	0.1122	0.0098	0.1085	0.0071	0.1132

*p < 0.05, **p < 0.01, ***p < 0.001, two-tailed

the Wave IV models (Models 3, 4, 7 and 8 in [Table 1](#)). For the Wave III models, among the civics courses that are denoted as statistically significant in [Table 1](#), only one of them becomes insignificant after correcting for multiple testing (civic skills development in Model 5). For the Wave IV models, all of the civics variables that are denoted as statistically significant remain significant after correcting for multiple testing.

In Models 1 and 3, the total number of social studies/civics courses a student takes has a positive and statistically significant effect ($p < 0.001$) on both measures. In Models 2 and 4, the effects remain statistically significant even after adding the set of individual and family controls, though the coefficients decrease slightly in both cases. Overall, we note that the substantive effects are fairly small. For instance, Model 2 indicates that an additional civics course in high school is associated with a 0.9-percentage-point increase in turnout in adulthood (it is worth noting that baseline turnout is fairly low). Thus, all else being equal, a person who took zero civics courses would have a predicted turnout rate of 39.39 per cent in adulthood and their turnout rate would be expected to increase to 40.24 per cent if they increased the number of civics classes to one. Models 5–8 report the results for the variables that count how many courses each respondent had from each category. Models 5 and 7, which show the effects of civics courses without controls, illustrate that a number of different course types have statistically significant effects on turnout.

In Models 6 and 8, which add control variables, several of the statistically significant effects dissipate, although a number of the categories still have significant effects. Model 6 has four statistically significant civics coefficients, and Model 8 has two. Put another way, of the eighteen civics courses in Models 6 and 8, 33 per cent have statistically significant effects. Courses on marginalized groups and political knowledge have an effect on the Wave III turnout measure, but these effects do not appear to persist over a longer period of time. Indeed, neither variable has a statistically significant effect on the Wave IV turnout measure, which was measured at least 6 years after high school.

The two types of courses that do seem to have enduring effects on voter turnout are experiential learning courses and those focused on multicultural/international topics. Both of these measures are statistically significant in the Wave III and Wave IV models that include controls (Models 6 and 8). Once again, though, the substantive effects are fairly small. For example, if we look at the multicultural/international measure in Model 6, the coefficient indicates that an additional course in high school is associated with an increase in turnout in adulthood of about 1 percentage point. Similarly, the coefficient for the experiential learning measure reveals that an additional course in this area in high school increases turnout in adulthood by about 3 percentage points.¹⁸ As a final note, it is worth mentioning that across the models, there is little evidence that classes focusing on service learning, civic skills development and political issues increase turnout after we control for individual and family attributes. These seem like just the types of classes the resource model of participation (Brady, Verba and Schlozman 1995; Verba, Schlozman and Brady 1995) would expect to increase turnout.

Family Fixed-Effects Models

The models in [Table 1](#) provide valuable leverage over the issue of confounding. However, it is possible to push our data a bit further to see whether the observed civic education effects discussed above hold up to additional scrutiny. Do the civics courses that have significant effects on turnout in adulthood reported in [Table 1](#) persist in the context of family fixed-effects models? If they do, it may be a signal that these courses are particularly effective in elevating turnout in adulthood.

¹⁸The effects are substantively small in the Wave IV models as well. For example, an additional course focused on experiential learning increases turnout by 0.111 units on a 4-point scale. And an additional course on multicultural/international issues increases turnout by 0.029 units on a 4-point scale.

Because the Add Health study has a fairly large sample and contains a subsample of siblings within the same families, we can utilize family fixed-effects models.¹⁹ We compare the estimated effect of civic education in a conventional cross-sectional model in which siblings are treated as individuals (without accounting for family) to the estimated effect in a fixed-effects model that accounts for all of the influences that are shared by siblings within the same family. Comparing the turnout of siblings with different levels of civic education but the same family background is as close as we can get to a controlled experiment. In this case, siblings from the same family serve as each other's control group. This approach allows us to control for all of the observed and unobserved family characteristics shared by the siblings, because only within-family variation is used to estimate the fixed-effects models.²⁰ Yet this approach cannot estimate the effect of unobservable confounders that are *not shared* by siblings. The family fixed-effects approach has recently been used to study the relationship between voting and health (Burden et al. 2016), education (Dinesen et al. 2016; Gidengil et al. 2019) and non-cognitive factors (Hillygus, Holbein and Snell 2016; Holbein et al. 2020). However, we are not aware of studies that employ this approach to examine the relationship between civic education and turnout.

While powerful, the family fixed-effects model rests on two important assumptions that, if violated, may lead to biased results. First, the model assumes that determinants of within-sibling differences in civic education are not correlated with voting. If there are unaccounted for sibling differences resulting from unshared experiences (for example, birth order, personality traits, cognitive ability) that positively influence both civic education and voting, the estimated effect of civic education on turnout will be inflated. Concerns about confounding, of course, are only relevant if we find a significant relationship between civic education and turnout based on the fixed-effects model.²¹

The second assumption is the stable unit treatment value assumption (SUTVA). In our case, SUTVA requires that the civic coursework of one sibling only influences their voting behavior and not the voting behavior of another sibling. If one sibling's civics coursework also increases another sibling's likelihood of voting, this would bias the estimated relationship between civic education and turnout in the fixed-effects model *downward*. Our data contain twin and non-twin siblings; we would expect a greater chance of a SUTVA violation if we were focused only on twins since identical (monozygotic) twins typically report being close to one another and thus potentially influence one another (Dinesen et al. 2016). We should also point out that concerns about SUTVA violations are less likely to be an issue for our Wave IV measure of turnout since it was elicited when respondents were between 25 and 34 years old – thus the spillover of civic education from one sibling to the next would have to persist for a very long time. It could also be the case

¹⁹Some of the siblings are twins, but using just the twin subsample would reduce the number of observations substantially. Thus we focus on a sibling-based design rather than a twin-based design.

²⁰A few things are worth noting here. First, the fixed effects help control for factors like levels of political interest in the family (i.e., if both kids in a family were exposed to politically interested parents and became interested as a consequence, our family fixed effects would capture the common influence of having interested parents). Secondly, our data set contains within-family variation in civics education. For example, we find (when we compare the first two siblings in each family, which we focus on since most people (93.51 per cent) in our study have just one other sibling in the dataset) that 77.26 per cent of siblings differ on the total number of civics courses taken, 28.37 per cent differ on the number of service learning classes taken, 26.25 per cent differ on the number of civic skills classes, 11.2 per cent differ on the number of political/social issues classes taken, 5.53 per cent differ on the number of marginalized groups courses taken, 3.08 per cent differ on the number of experiential learning classes, 34.11 per cent differ on the number of history classes taken, 44.42 per cent differ on the number of multicultural/international classes taken, 32.31 per cent differ on the number of political knowledge classes taken, and 54.73 per cent differ on the number of other social studies classes taken. There is also within-family variation in turnout. For example, we find that for the Wave III turnout measure, 36.01 per cent of siblings (again, focusing on the first two siblings in each family) differ on turnout, and for the Wave IV turnout measure, 61.89 per cent of siblings differ in their responses about the frequency of voting.

²¹In principle, an unobserved factor could be biasing our results downward, but the confounder would have to have a positive (negative) effect on civic education and a negative (positive) effect on voting. This scenario seems highly unlikely.

that civic education for one sibling *depresses* the turnout of another sibling, but this seems highly unlikely. Below, we provide a preliminary test of this idea and find little evidence that this occurs.

Before analyzing the results, we note that for the fixed-effects analyses we specify linear models. We use this approach instead of logistic regression because in cases where families do not vary on the dependent variable (all siblings voted or none of them voted) they would be dropped when estimating the logistic fixed-effects models.²² Using linear models lets us include these siblings in our analysis, which is an important advantage of this approach. We present the results of the fixed-effects models graphically in Figure 1.²³ There are two panels – one showing the results for the Wave III turnout measure and one showing the results for the Wave IV measure. It is worth recalling that in Table 1 a total of eight civics measures were significantly related to turnout after controlling for other factors. Thus Figure 1 focuses on the effects of these measures. In each panel, we present ordinary least squares (OLS) estimates (controlling for age and sex) in which respondents are treated as individuals without regard to their membership in a family and familial factors are not taken into account, and the family fixed-effects estimates, which gauge the within-family impact of civic education on turnout. These are the estimates of primary interest, but it is useful to present the OLS estimates since they provide a sense of how the relationship between civic education and turnout changes after accounting for confounding factors rooted in the family. In short, the OLS estimates presented in Figure 1 are similar to the effects of civics courses shown in Table 1 (for the models that do not include control variables). It is important to point out one limitation of Figure 1: the samples used to estimate the effects shown in the figure are considerably smaller than the samples used in Table 1 since the figure only uses the *subset of siblings in the sample*. In Figure 1, the Wave III sample is comprised of 1,923 siblings and the Wave IV sample is comprised of 1,579 siblings. Thus, we acknowledge that the smaller sample sizes in the sibling fixed-effects analyses lead to reduced precision in our estimates compared to those in Table 1.²⁴ However, we still believe it is worth examining the results of these models, even if they are taken as suggestive until similar studies can be conducted using larger sibling samples.

There are a few things worth noting when looking at Figure 1. First, the civic education effects are fairly small in magnitude given the point estimates and the ranges of the confidence intervals. Secondly, most of the effects that remained significant in Table 1 after accounting for controls seem to dissipate once we account for family fixed effects (Wave III – total civics classes, experiential learning, marginalized groups; Wave IV – total civics classes, experiential learning). Although none of the civics variables is statistically significant at conventional levels in the fixed-effects models in Figure 1,²⁵ the coefficient for courses on multicultural/international

²²This is regularly done when using turnout as a dependent variable in the context of family fixed-effects models. For example, see Burden et al. (2016); Dinesen et al. (2016); Gidengil et al. (2019).

²³Model results are included in the Appendix.

²⁴A quick comparison between the OLS estimates from Table 1 and Figure 1 indicates that they are quite similar, though the confidence intervals are wider when we use just the sibling samples. For example, the coefficient for the total number of social studies courses taken on Wave III turnout is 0.013 [0.010, 0.017] using the full sample and 0.014 [0.006, 0.022] using the sibling sample. The coefficient on the number of multicultural/international courses in Table 1 (on Wave III turnout) is 0.019 [0.011, 0.028] and 0.022 [0.0002, 0.044] using the sibling sample. The coefficient on the experiential learning course measure in Table 1 (Wave III turnout) is 0.037 [0.013, 0.062] in the full sample and 0.039 [-0.042, 0.120] for the sibling sample. For courses on marginalized groups in Table 1 (Wave III turnout), the effect is 0.044 [0.018, 0.070] in the full sample and 0.073 [0.011, 0.135] in the sibling sample. The political knowledge coefficient in Table 1 (Wave III turnout) is 0.015 [0.004, 0.027] in the full sample and 0.012 [-0.015, 0.038] in the sibling sample. For Wave IV, the effect of the total number of social studies courses taken is 0.024 [0.016, 0.032] and 0.019 [-0.0004, 0.030] in the sibling sample. The effect of experiential learning on Wave IV turnout is 0.126 [0.066, 0.185] in the full sample and 0.060 [-0.126, 0.246] in the sibling sample. Finally, the effect of multicultural courses on Wave IV turnout is 0.042 [0.019, 0.064] in the full sample and 0.044 [-0.003, 0.092] in the sibling sample.

²⁵None of the civics measures that were insignificant in Table 1 above are statistically significant in the fixed-effects models. See the Appendix for results.

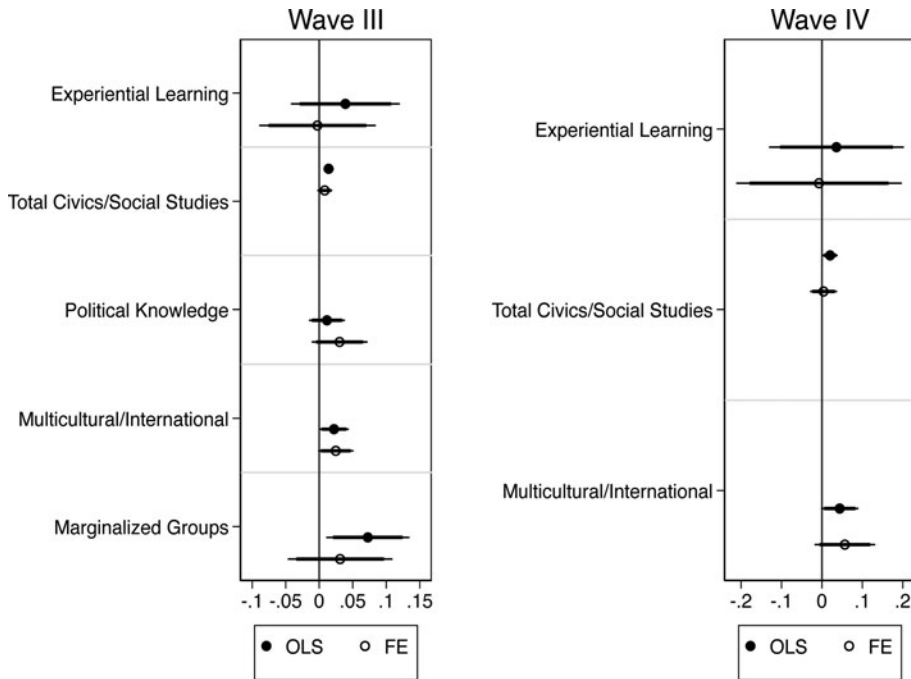


Figure 1. Comparing effects of civic education in OLS and family fixed-effects models

issues is close to statistical significance in both the Wave III and Wave IV fixed-effects models ($p = 0.067$ and $p = 0.124$ [two-tailed], respectively). Thus, of the nine different types of civics courses we analyze, these types of courses appear to be the most likely to be related to voter turnout in adulthood.

Overall, the results in Figure 1, when considered alongside those presented in Table 1, suggest that most civics courses do not have statistically significant effects on turnout in adulthood and that any effects that exist are unlikely to yield large increases in turnout in adulthood (as many have hoped).²⁶ Above, we noted that sibling fixed-effects models come with limitations, such as decreased precision. Although our results are suggestive of null relationships between most civics courses and turnout in adulthood, we note that *even* if one considers the OLS estimates in Figure 1, which only control for age and sex (and are therefore likely to be liberal estimates of the effects), the civic education effects are very small, just as they were in our initial analyses. For example, the coefficient for multicultural/international courses in the Wave III model is 0.022, which means that an additional civics course in this area in high school is associated with an increase in turnout in adulthood of just 2.2 percentage points. Such an effect is fairly small given that some interventions that are far less expensive and time consuming than civics courses (such as postcards) can increase turnout by 2 to 8 percentage points (see, for example, Gerber, Green and Larimer 2008) and can have effects that persist for years (Davenport et al. 2010). It is also interesting to note that the civic education effects in Figure 1 are comparable

²⁶Above, we noted that there could be some unobserved factor that biases our results downward, but the confounder would have to have a positive (negative) effect on civic education and a negative (positive) effect on voting. It is possible that birth order is positively related to personality traits (later-born children tend to be more extraverted – see Beck, Burnet and Vosper 2005), which are related to education (Anger 2013; van Eijck and de Graaf 2004), and negatively related to voting (firstborns are much more likely to vote – see Bratsberg et al. 2019). To examine this possibility, we included a measure of birth order ('Which child are you—the first, the second, or what?') as a control variable in the within-family models. The results (included in the Appendix) are nearly identical to those presented in Figure 1.

to some of the socialization effects in [Table 1](#). For instance, a one-unit increase in parental education corresponds to a 1.4-percentage-point increase in turnout in adulthood. Similarly, children whose parents are civically involved exhibit a 3.3-percentage-point increase in turnout when they reach adulthood compared to their counterparts. Thus civics courses, even when they work, do not appear to make up for differences in family background.

Overall, our takeaway is that while civics courses likely have null effects on turnout in adulthood, the best-case scenario is that civic education exerts very small effects overall. Ultimately, we hope future researchers will replicate our analyses using larger sibling samples. We are not aware of any other datasets that contain sibling samples, transcript-based civics measures and turnout measures, but we encourage the collection of such data. Although our results provide initial evidence that civics courses have little effect on voter turnout in adulthood, additional analyses will be helpful as political scientists, civic groups, policy makers and educators continue to think about the effectiveness of civic education in fostering voter turnout.

Discussion

Scholars, educators and civic groups have long been interested in ways to increase voter turnout. Civic education is often proposed as a way to provide people with basic information about the political system and, hopefully, motivate them to become politically active. Here, we focused on the link between civic education in high school and later political behavior – whether people vote in elections when they reach adulthood. It is important to note that we did not focus on the relationship between civic education and political orientations, such as knowledge about politics or the sense of political efficacy. Thus, although civics courses do not appear to substantially boost turnout, they could generate increases in political knowledge or other orientations towards politics. Some scholars have found evidence that civics classes lead to improved political knowledge (McIntosh, Hart and Youniss 2007; Niemi and Junn 2005), but it would be especially valuable to build on this work by examining the relationship between civics and variables like political knowledge in the context of family fixed-effects models, which provide leverage over some of the familial variables that might confound this relationship. We encourage future work in this area.

Overall, the results of this analysis provide a pessimistic view of the power of civic education to increase voter turnout.²⁷ It appears that the effect of civic education on turnout is confounded by familial factors that influence both civic education and engagement. Although the family fixed-effects approach does not allow us to precisely examine which family factors confound the relationship, there are a number of factors that likely shape both the choice to take civics courses and later political engagement. Galais (2018) describes one possible family factor that could influence both variables. She notes that ‘By fulfilling their obligations with the child’s schooling, parents are “preaching by practice.” Showing their involvement with the school community, the child might learn to do so in the future with a broader community ... children whose family is involved in their education should be more dutiful in the future than those raised by more disengaged families’ (604). It is conceivable that parental behavior could lead children to feel a sense of obligation toward their community and possibly foster a desire to take civics courses in school. In addition, an early sense of obligation passed on from one’s parents might also translate into a sense of obligation to participate in political life (that is, voting in elections) when one reaches adulthood. Another possibility comes from social learning theory, which suggests that children have a tendency to imitate their parents (Kudrnáč and Lyons 2017). Thus children who observe their parents being active in the community may become interested in taking civics courses in school – where they can learn how to be active in civic life. Observing one’s

²⁷We note, though, that other recent studies have also found that civic training in school has little or no effect on participation later in life. Indeed, Öhrvall and Oskarsson (2020) found that taking part in a mock election as a student does not increase the likelihood of voting in subsequent real elections.

parents engage in community life could also foster a commitment to engage in civic activities like voting in elections. Future researchers should seek to identify the specific family attributes and experiences that drive children to participate in civics courses and vote in elections later in life.

The results of this article have some practical implications. The evidence presented here suggests that civics coursework in high school likely has little effect on voter turnout in adulthood. As noted above, although civic education may have positive effects on other dimensions of citizenship (for example, knowledge or efficacy) and may therefore be valuable, scholars, educators and civic groups should not count on civic education in high school to elevate turnout levels. One idea that stems from our results is that schools should look for other interventions or mechanisms that can foster political participation. For instance, some recent research has shown that interventions designed to improve non-political skills (for example, psychosocial skills, such as self-control) can have downstream effects on political engagement (see, for example, Holbein 2017). These types of experiences appear to have fairly large effects on voter turnout in adulthood and may represent a more effective and efficient way of shaping voter turnout than the traditional civics curriculum typically delivered in schools.

Supplementary material. Online appendices are available at <https://doi.org/10.1017/S0007123420000435>.

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