

Civic Engagement and Education: An Empirical Test of the Sorting Model¹

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Abstract

According to the sorting model of education, the impact of education on civic engagement is relative, rather than absolute. Education correlates with greater engagement because it is a marker of social status; the degree of status conferred by your level of education is determined by the average level of education within your environment. This paper tests the sorting model, by paying strict heed to its assumptions. The analysis confirms the model, but considerably narrows its reach. Sorting applies only to one particular type (electoral activity), only when the educational environment accounts for variation across age and place, and only when one models the interactive relationship between education at the individual and environmental levels. Furthermore, sorting applies more to men than women. The same analytical framework

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demonstrates that being in a more highly educated environment amplifies the relationship between education and democratic enlightenment (political knowledge and tolerance).

Over thirty years ago Converse wrote that education “is everywhere the universal solvent, and the relationship is always in the same direction. The higher the education, the greater the ‘good’ values of the variable” (1972, 324). In the years since, education has remained the “universal solvent.” In 2000, Putnam wrote, “Education is one of the most important predictors—usually, in fact, *the* most important predictor—of many forms of social participation—from voting to associational membership, to chairing a local committee to hosting a dinner party to giving blood” (2000, 186). Notwithstanding its longstanding ubiquity as a control variable in models of civic and political participation, however, the precise nature of the link between education and civic engagement remains largely in the proverbial black box.

Far from being a purely academic question, whether—and if so, how—education relates to civic engagement has consequences for public policy. Historically, a primary rationale for the huge public investment in education has been to foster good citizenship, and there have been recent calls for educators to do more to enhance civic engagement among their students (Carnegie Corporation and CIRCLE 2003; Macedo et al. 2005). But without understanding why education is the universal solvent, efforts to enhance civic participation through education will likely fail.

A number of possibilities for the mechanism linking education and engagement present themselves. Education may lead to an increase in knowledge, which breaks down barriers to public engagement (Delli Carpini and Keeter 1996). Schooling may inculcate a norm encouraging civic involvement (Campbell 2006) or teach civic skills (Verba, Schlozman, and Brady 1995). And, of course, it might be a combination of reasons. Or perhaps schools themselves have no effect. The strong correlation may not be causal at all, but due only to a selection effect—the same people who would have been civically engaged anyway also obtain higher education. While there has been recent evidence suggesting that education has a causal

impact on various dimensions of democratic citizenship (Dee 2004; Milligan, Moretti, and Oreopoulos 2003), in the absence of full-blown randomized experiments there is always the lingering suspicion that the strong correlation between education and engagement is spurious.

A strong counter to any causal claim for the content of the educational experience is the argument that education simply proxies social class, and so the relationship between education and engagement merely reflects the venerable SES model of participation (Verba and Nie 1972). By far the most sophisticated version of the education-as-proxy-for-class argument has been advanced by Nie, Junn, and Stehlik-Barry (hereafter, NJS) in *Education and Democratic Citizenship in America* (1996). According to NJS, education serves as a social sorting mechanism—more education means higher status (the *sorting model*). And since higher-status people are more likely to engage in many different forms of engagement, education and engagement have a strong, positive correlation. However, as average levels of education in the population have risen, each individual has needed ever more education to be positioned at the top of the class hierarchy. The same status conferred by a college degree a generation ago now requires a graduate degree. In other words, education has undergone inflation. Just as price inflation decreases the value of a dollar, so has education inflation decreased the “value” of a year of education, as least as far as its impact on public engagement is concerned. Consequently, NJS argue, what matters when predicting public engagement is not absolute level of education, but rather educational attainment relative to the average education level in one’s social environment (i.e. the people with whom one competes economically, socially, and politically). Building on this insight, NJS present evidence that accounting for the educational environment (“education inflation”) over time explains why, after decades of rising education, we have not also seen an increase in civic and political participation. Their analysis has a broad scope, as they

argue that the sorting model applies to many forms of democratic engagement, from voting to working on political campaigns to membership in voluntary associations.

However, NJS posit that the educational environment has a very different effect on what they label democratic *enlightenment*, by which they mean both political tolerance and political knowledge.² They posit a *cumulative model*, which predicts that a more highly educated environment pushes enlightenment up for everyone, regardless of an individual's own level of education.

NJS make a provocative argument that has not received enough attention among scholars of participation. If they are right, it means that virtually every model of participation and tolerance in the literature is mis-specified, since education is habitually used as a control without accounting for the educational environment. In terms of policy, if NJS are correct, their conclusions lead ineluctably to the conclusion that efforts to boost civic and political participation by enhancing education will fail (Gutmann 1999; Macedo 2000; Torney-Purta 2002; Niemi and Junn 1998). Neither an increase in the quantity nor the quality of education would boost rates of civic and political participation.³ A rise in both high school and college completion rates would only fuel education inflation further, "cheapening" the value of each individual's own educational attainment. Since the content of education has no effect on whether people are publicly engaged, neither would it make any difference to design civics curricula to boost engagement. Participation is affected only by the status conferred by your diploma, not what you learned to earn it.

² This paper adopts the term "enlightenment" to describe knowledge and tolerance, in keeping with the terminology used by NJS.

³ Although, as explained in more detail below, by NJS's account it would still be expected to increase enlightenment, particularly political tolerance.

The scope of NJS's argument regarding the educational environment compels a closer look, a test of whether its conclusions hold up under scrutiny. While some might argue that the sorting model can only be applied to over-time analysis, this argument does not consider that the theory at work has observable implications in cross-sectional data which serve to illuminate the causal mechanisms linking educational environment and engagement. Specifically, the use of cross-sectional data enables careful attention to different definitions of educational environment, and myriad forms of engagement. Subjecting the sorting model to this close scrutiny thus refines it, with those refinements then informing any future applications of the theory to over-time data—which, indeed, is the intended next step in a subsequent paper.

As one example of how the sorting model can be refined, consider how NJS argue that the model can be applied to many forms of engagement. However, a careful reading of the model's assumptions suggests that sorting should only apply to activity that is most likely to be driven by a sense of competition. Not all forms of public engagement are equally competitive in nature, and some are not plausibly considered competitive at all. This analysis thus presents evidence that sorting only applies to the forms of activity in which the stakes are crystallized by contestation; it also innovates by accounting for variation in the educational environment across the United States. A focus on geographic variation enables the first test of the central causal mechanism underpinning the sorting model, namely that education serves to position people within their social networks. Social networks are generally a local phenomenon, which suggests that educational environment should be contained to one's community. Furthermore, the primary observable implication of the sorting model is the predicted *interaction* between an individual's own level of education and the educational environment even though such an interaction has not previously been modeled explicitly. This analysis tests for (and finds) such an interaction.

With these innovations the sorting model is confirmed but significantly narrowed. The results show that sorting by education applies only to one particular type of public engagement (electoral activity), only when the educational environment incorporates variation in educational attainment by both age and place, and only when the model properly accounts for the hypothesized interaction between an individual's level of education and the educational environment in which that person is immersed. The model is also narrowed in another sense, namely by gender, as sorting applies far more to men than women.

This analysis also refines the cumulative model . Using the same analytical framework the analysis shows that a highly educated environment does not simply push enlightenment up for everyone. Instead, there is a positive interaction between education at the individual level and the educational environment. Living in a highly educated environment amplifies the impact of an individual's own level of education on political tolerance and knowledge.

The Competition Assumption

The sorting model rests on the assumption that democratic engagement entails political conflict. In the words of NJS:

We argue that certain aspects of democratic citizenship are in fact bounded, or limited, by their essentially competitive nature. The instrumental behaviors and cognitions of political engagement can be seen as more of a zero-sum game, bounded by finite resources and conflict, where one's gain will necessarily be another's loss. (101)

NJS do not limit their description of political engagement as zero-sum to a small number of activities, as they apply the sorting model to campaign activity, voting, political attentiveness, and knowledge of candidates in elections for the House of Representatives. They find evidence

that it pertains to all (145). Furthermore, NJS extend the sorting model to a form of engagement that typically has no overt political content at all, namely membership in voluntary associations:

[M]embership in voluntary associations is, we expect, the result of relative, rather than absolute, educational attainment. Members of associations obtain substantial psychic and social rewards for their organizational involvements. Moreover, voluntary membership requires time, energy, and often money, and those who are relatively near the center of the social network can better afford to pay the costs and are more likely to reap the benefits. (162)

NJS thus argue that group membership is driven by the same conflict over rewards as political engagement. Undoubtedly, participation in some civic groups indicates social status, lending plausibility to NJS's argument. However, a case can also be made that many, perhaps even most, group memberships are not driven by a zero-sum competition over social position. While membership in voluntary associations does require time and energy, it is not clear that money is necessary at all (a point essentially conceded by NJS by their qualification that money is "often" -- and thus not "always"-- required). Social status does not necessarily give people more free time (Verba, Schlozman, and Brady 1995). Indeed there is reason to think that more status means less leisure time (Aguilar and Hurst 2006). Neither is it clear why people with more social standing would have more energy to devote to civic activity. NJS also indicate that the rewards for this form of engagement are psychic and social, rather than material. While material rewards clearly are scarce resources, why should psychic and social rewards be considered finite and thus competitive?

The application of the sorting model to group memberships is one example of where we have reason to question the reach of NJS's sorting model, but a close look at the assumptions underpinning their theory reveals that applying it to numerous other forms of participation is

potentially problematic as well. Recall that NJS make the twin claims that political involvement is both *bounded* and *competitive*. While NJS see boundedness and competition as mutually reinforcing, it seems plausible that participation in a competitive political contest is anything but zero-sum (and thus bounded). If you feel your interests are at stake in an election, do you not have an incentive to encourage *more* people to work on behalf of your preferred candidate? Rather than a zero-sum game, in political campaigns the “more the merrier” principle applies.

Even if political activity is not bounded by zero-sum competition, however, that does not mean that everyone is equally motivated to get involved. Many people are motivated to participate in politics because they perceive that their interests are at stake. Therefore, it follows that those people who have more at stake in a political outcome have a greater motivation to aid their side in the contest. On average, those with the greatest stake are “substantially more likely to be found closer to the central nodes of politically important social networks,” or have *social network centrality* (Nie, Junn, Stehlik-Barry 1996, 45).

Thus, NJS and this analysis concur that social network centrality matters for political engagement. There is also agreement that greater relative education--that is, more education than others in the same environment--serves as the primary criterion determining who is at the center of politically relevant networks. However, NJS and this analysis diverge on the mechanism that links social network centrality and engagement, which in turn leads to different empirical predictions. NJS argue that people at the center of social networks are more engaged because they are in a zero-sum competition with everyone else to have their voices heard, given that government has limited capacity to respond to voters’ demands. They thus hypothesize that the sorting model applies to many different forms of public engagement.

Alternatively, this analysis proceeds from the supposition that the closer you are to the center of politically-relevant social networks, the greater your stake in the outcome of political

contestation, which in turn spurs greater political involvement to see your side prevail (which often requires recruiting more supporters to one's cause). Consequently, sorting should apply to engagement for which, on average, contestation is most salient and the stakes most clearly defined—specifically, electoral activity. Of course, one's stake in the outcome of an election is not solely determined by social network centrality; many other factors matter too. To the extent that education has a positive impact on engagement in electoral activity, its impact is a function of sorting by relative education.

Sorting, it is hypothesized, does *not* apply to group memberships, which except in rare cases are not likely to be motivated by protecting one's interests in a political contest. It is less clear whether sorting should apply to political activities that are not tied to campaigns, such as expressive activities like protesting or contacting a government official. In some cases such activities do not entail a contest per se and thus do not necessarily provide the same competitive motivation to see one's side prevail. (Picture a rally for a valence issue like "support for the environment"). To the extent that expressive activity is not driven by a sense of competition, we should not expect the sorting model to apply. However, sometimes expressive activity is for a cause that resembles an electoral campaign (e.g. a demonstration in favor of a particular environmental bill). To the extent that expressive activity is election-like, sorting would be applicable. Unfortunately, existing data do not permit classifying expressive activity as being of one type or another. Therefore, for this analysis the hypothesized relationship between relative education and expressive activity is unclear.

Finally, we should not expect relative education to matter for voter turnout, which is appropriately considered to be distinct from participation in political campaigns. Even though voting is obviously central to elections, previous research has demonstrated that the decision to vote has a distinctive bundle of motivations, blending both self-interest and a sense of civic

obligation (Blais 2000; Campbell 2006; Fiorina 1976; Riker and Ordeshook 1968; Shachar and Nalebuff 1999). For example, while voter turnout rises where elections are most competitive, it is equally high in communities where elections are the least competitive (Campbell 2006), suggesting that we should not expect voting to be driven primarily by competition. NJS themselves acknowledge the unique nature of voting by referring to the “double-barreled nature of voting as part instrumental and part symbolic behavior” (68). Consequently, the existing literature typically isolates voting from other forms of engagement (Verba, Schlozman, and Brady 1995), which will also be the case here.

The general point is not that there are a few special cases of engagement which fall outside the reach of the sorting model, but rather that only a few fall within it.

Age and Place

The second supposition underpinning the sorting model is that jockeying for status occurs within one’s educational environment, defined as the people with whom we interact. NJS stress that social position is not determined by one’s education level relative to the entire population, but rather relative to one’s own age cohort. Accordingly, they compare a respondent’s level of education to the mean educational attainment of people age 25-50 at the time that the respondent was 25 years old. Tenn (2005) criticizes this definition as too imprecise and offers an alternative: measuring educational environment as one’s educational attainment relative to people born in the same year.⁴ Helliwell and Putnam (2007) offer a still more critical assessment. They note that

⁴ Tenn’s measure of relative education requires fine-grained data on educational attainment, available only from the Current Population Survey. A reliance on the CPS means that he is limited to testing the sorting model on voter turnout (although, as discussed below, there are strong theoretical reasons to expect that voting is not subject to educational sorting).

NJS have operationalized the educational environment so that it only accounts for the education level of people born before you, which means that “no one ever competes against anyone younger, but everyone always competes against everyone older (including the dead)” (2-3). In their analysis, Helliwell and Putnam do not differentiate educational attainment by age.

No matter the age range used when measuring relative education within the educational environment, there is a critical omission when the educational environment is defined in national terms (as NJS and Tenn have done). The sorting model assumes that relative education serves to position people within their own social networks. In the words of NJS: “[E]ducation works as a sorting mechanism by placing those with higher levels of education in positions closer to the center of social and political networks” (131-132). Indeed, much of *Education and Democratic Citizenship in America* is dedicated to explaining the significance of social network centrality as a factor driving political participation. Social networks, however, are not national; they are local. Consequently, Helliwell and Putnam argue that the sorting model requires the analyst to account for the geographic differences in educational attainment across the United States. They do so by comparing respondents’ own educational attainment to the mean education level—not differentiated by age--within the same U.S. census region.

Using their measure of relative education Helliwell and Putman arrive at conclusions that contrast sharply with those of NJS, stressing that they “find no systematic evidence that increases in average education have any negative effects on participation”(15). Helliwell and Putnam are careful to note they do not assume that “census region” (really, a conglomeration of states) is the ideal geographic unit for their analysis, but mean only to emphasize that shifting the parameters of the educational environment even a little produces different results. However, we cannot rule out the possibility that NJS’s results differ from those of Helliwell and Putnam because the latter have not accounted for the considerable differences in educational attainment across age cohorts.

Also, note that Helliwell and Putnam's analysis does not include any activities in the electoral domain, even though that is where theory gives us the strongest expectation of educational sorting.

In sum, the literature has defined educational environment in terms of age (NJS and Tenn) and place (Helliwell and Putnam). Both matter. The average level of education has undergone a steady increase over time--the average 25-34 year old has 13.8 years of education, compared to 12.3 years for 65+ year-olds.⁵ At any given point in time, there is wide variation in average education across the United States. For instance, in the McAllen-Edinburg-Mission, Texas metropolitan area, the average educational attainment for people over age 25 is 10.6 years, while residents of the Corvallis, Oregon MSA average 14.8 years of schooling. While the previous literature has defined educational environment in terms of either age *or* place, this analysis measures the educational environment by uniquely combining age *and* place.

To combine age and place when measuring educational environment requires determining which ages and which places should go into the measure. On this score, the sorting model itself provides some guidance. Recall that, according to NJS, status is determined within social networks--the people with whom we interact within our local communities. This analysis accounts for the local nature of social networks by defining educational environment on a much smaller scale than the national population, or even census regions. While theory suggests that the geographic scale should reflect the local community, it is not necessarily clear how that should be operationalized for the purpose of empirical measurement. Accordingly, the analysis tests three levels of geography: the state, the metropolitan area, and the zipcode.⁶ While none of these

⁵ These numbers are based on the National Civic Engagement Survey, described below.

⁶The metropolitan area is defined using the Census Bureau's designated Metropolitan Statistical Areas (MSA). For respondents who do not live in a metropolitan area, their county is substituted.

perfectly mirror an individual's own social networks, each comes closer than defining educational environment on a national or regional scale. Including all three enables a test of the hypothesis that educational sorting takes place within localized social networks. If sorting is a local phenomenon, then we should observe a stronger impact for educational environment the smaller its geographic scale.

The zipcode, while the smallest of the three geographic units, is not a tangible community per se, and is meant only to proxy a more localized geographic location than the metropolitan statistical area (MSA) as defined by the Census Bureau. Many MSAs cover a vast geographic area and a significant population—larger on both counts than some states. The Atlanta MSA, for example, covers twenty-eight counties, while the New York-Northern New Jersey MSA has a population of over twenty-one million people. Units of this size and scope are not likely to capture a respondent's social network. The zipcode is admittedly also imperfect as a measure of one's local networks but is the smallest geographic unit available for the data employed in this analysis. (Future research would profit from testing the empirical consequences of using still other geographic units to measure educational environment).

For each geographic unit—state, MSA/county, and zipcode—years of education have been measured within the standard age cohorts that the U.S. Census Bureau uses when reporting educational attainment: 25-34, 35-44, 45-64, 65+. Educational environment is therefore operationalized as the mean educational attainment, measured in years of schooling, for each age cohort within the relevant geographic unit. When measured in this way, there is considerable variation in educational environment by age cohort. For example, the localized educational environment (measured at the zipcode level) for those age 65 and up is a mean of roughly 11.6

years of education, while for 25-34 year-olds it is approximately 13.2 years⁷—the difference between not graduating from high school and a year of post-secondary education.

Recall that Tenn objects to the 25-year span of the NJS measure, while Helliwell and Putnam criticize NJS for their asymmetric definition of educational environment. Using the Census Bureau’s age cohorts accounts addresses both concerns—the cohorts are relatively narrow, and respondents’ education levels are compared to others within the same age range, both older and younger.⁸ While not identical to the method used by either Tenn or Helliwell and Putnam, it is consistent with the spirit of both.

For the analysis, the geographic data on educational environment has been merged with individual-level survey data (described in more detail below). For respondents in, say, Chicago, think of their educational environment as defined by three concentric circles. The widest circle is the average educational attainment of people in their age cohort who also live in the state of

⁷ The Census reports educational attainment in categories, which have been converted to the following years of educational attainment for the purposes of calculating the mean within an educational environment:

Less than 9 years:	6 years
9- 12 years:	10 years
High school:	12 years
Some college:	13 years
Associate degree:	14 years
Bachelors degree:	16 years
Graduate degree:	18 years

These cut-offs are admittedly a matter of judgment, but shifting them does not affect the results. Years of Education, measured at the individual level, uses a parallel conversion system (see the online appendix for details).

⁸ Except, of course, in the small number of cases of someone whose age is at the cut-off.

Illinois, the next covers the Chicago metropolitan statistical area, while the smallest circle is the zipcode in which they live.

Note that allowing the educational environment to vary across place enables a test of the sorting model that can simultaneously account for both age and the average educational attainment within the environment. As noted by NJS, untangling age and environment is impossible in cross-sectional analysis using their method of measuring the environment on a national scope, since age is almost perfectly correlated with a nationwide measure of educational attainment (167-168). However, age is not so closely correlated with a localized measure of educational environment.

Refining the Sorting Model

This analysis employs the National Civic Engagement Study (NCES). Conducted by Zukin et al. in the Spring of 2002 (with a total N of 3,248), it meets the criteria necessary to test the relationship between educational environment and different forms of public engagement.⁹ First, the NCES entails a major effort to measure the full range of civic and political engagement in the twenty-first century. In addition, as a national telephone survey it includes respondents across an extensive range of geographic locations. As well, the inclusion of geocodes makes it

⁹ The survey has an oversample of young adults age 15-25, but because this analysis is only appropriate for people who have completed their education, it is limited to those age 25 and up, the standard cut-off in the literature for “educational maturity” and the one also employed by NJS. For the purposes of the analysis in this paper, there is a working N of roughly 2,200 cases. The data have been made publicly available by CIRCLE, the Center for Information and Research on Civic Learning and Engagement. For more details on the NCES, including the dataset itself, see www.civicyouth.org.

possible to link respondents to their educational environment, down to the level of the zipcode.¹⁰

Since the refined hypothesis stemming from the sorting model being tested here is that only those forms of engagement most likely to be driven by competition are explained by the sorting model, it is necessary to differentiate among the many forms of civic and political participation. Different means of participation vary in many ways, including their motivations, frequency, and objectives. To sort through this complexity, scholars have developed a number of useful typologies, typically informed by theory and then confirmed empirically. Typologies of participation, however, are a moving target, since social, political, and even technological changes mean that citizens come to adopt new and different forms of engagement. Periodically, new indices have to be developed to reflect these changes (Barnes and Kaase 1979; Clarke, Kornberg, and Stewart 1985; Milbrath 1965; Putnam 2000; Rosenstone and Hansen 1993; Verba and Nie 1972; Verba, Schlozman, and Brady 1995).¹¹ Zukin et al. have recently developed a new typology, updated to reflect Americans' changing repertoire of civic and political participation. Rather than rely on the pre-existing measures of engagement that have long been used by social scientists, they employed a multi-method approach (including consultation with experts, focus groups, and pre-testing) to produce an index of 19 items that covers the gamut of public engagement. This index forms the core of the NCES. Some of the index items replicate measures that have been used for decades (such as voting and volunteering in political campaigns), while others are not typically found on other general-purpose surveys (e.g., biking, walking, or running for charity).

¹⁰ Thanks go to Mark Lopez, former Research Director of CIRCLE, for generously granting access to the geocodes.

¹¹ See Brady (1999) for a detailed discussion of numerous indices.

Grouping these many different forms of engagement into a manageable number of categories requires attention to both theory (which activities share common purposes?) and empirics (which activities load together on common factors?). Recall that, above, four different types of participation were differentiated from one another on theoretical grounds: electoral activity, expressive activity, group membership, and voting. As detailed by Zukin et al. (2006), principal components analysis of the NCES confirms the intuition that these are distinctive types of engagement, comprised of activities that are similar in nature. The first grouping includes activities that all take place in the electoral arena (*Electoral Index*) and the second constitutes expressive political activity (*Expressive Index*). The third includes involvement in voluntary groups but also entails other forms of civic activity like working with others to solve a community problem and raising money for charity (*Civic Index*). Voting is modeled on its own, using an item that asks respondents how often they vote in national and local elections.¹² Table 1 lists the activities in each category, as well as their factor loadings. Since this analysis explicitly adopts the classification system of Zukin et al., the table echoes their method of analysis and thus reports results from principal components analysis; other methods of scaling produce comparable results.¹³ To simplify the presentation of the results, the indices used in the analysis are additive, and thus consist of tallying the number of activities in which the respondent has engaged. Note

¹² This is a deviation from Zukin et. al., who include voting in their political index.

¹³ The principal components analysis nearly replicates that of Zukin et al, although they use some different terms than those I have adopted here, namely Political instead of Electoral, and Voice instead of Expressive. Also, they group voting with the other electoral activities. The reader is referred to Zukin et al. for further elaboration.

that models that use the factor scorings as dependent variables produce substantively identical results.¹⁴

As is often the case when constructing indices, there are not always bright lines between one category and the next. An activity grouped in one category could plausibly also be placed in another. In these cases, the analysis follows Zukin et al. and uses both theory and empirics to decide on the placement of the item. For example, “displaying a campaign button” is classified as an electoral activity even though it obviously also has an expressive component. Theory suggests that, on balance, it is properly classified as electoral, since wearing a button is generally for the purpose of supporting a candidate in a competitive electoral contest. That decision is confirmed by the principal components analysis, which shows that “campaign button” has a higher loading with the other electoral activities than with the expressive items.

<Table 1 about here>

In addition to differentiating among types of engagement and combining both age and place when measuring educational environment, this analysis employs a third innovation in testing the sorting model. In previous research, models of democratic engagement have included educational environment alongside the individual’s level of education . Using this specification, a negative coefficient for educational environment is interpreted as evidence favoring the sorting model, since it indicates that, when controlling for education at the individual level, a greater mean level of education in the environment drives engagement down. However, this specification does not fully test what sorting predicts, as the model posits an *interaction* between the individual’s own education and the educational environment. Sorting means that, as the average level of education in the environment rises, each year of education matters less. Operationally, this would be observed as a negative coefficient for an interaction between

¹⁴ The unreported results mentioned in this paragraph are available upon request.

individual-level educational attainment and the mean years of education in the environment (*Education X Educational Environment*). To use an intuitive example, it would mean that having a college degree in a place where few people have college degrees provides a larger boost to engagement than being college-educated in a place where college degrees are the norm.

Summarizing thus far, three interlocking hypotheses have been proposed, each distilled from the sorting model's own assumptions:

1. The Interaction Hypothesis: As average education rises, each year of an individual's own education has a smaller impact. Education X Educational Environment should be negative and statistically significant.
2. The Geography Hypothesis: The interaction between education and educational environment should be stronger as the geographic scope of the environment narrows. The smaller the geographic scope of the educational environment, the greater its impact, and the greater the confidence, in statistical terms, we can have in the coefficient for Education X Educational Environment. That is, the coefficient should be larger and the p level should be smaller as the geographic area covered by the environmental measure narrows.
3. Electoral Hypothesis: The sorting model should apply to electoral activity, and not to civic activity or voting. The coefficient for Education X Educational Environment should be both negative and statistically significant for the model of the Electoral Index, but should not be significant in models of the Civic Index or Voting. *A priori*, it is unclear whether sorting should apply to expressive political activity without further specifying the objective of that activity (which is not possible with these data).

The models also control for a number of factors known to be correlated with engagement and education. For the sake of comparison, the array of variables replicates those used by NJS.

They include gender, race/ethnicity, marital status, retirement, home ownership, church attendance, rural residence, having recently moved, strong partisanship, and independent partisanship.¹⁵ The model also controls for age, by grouping respondents in one of the four age categories defined by the Census Bureau (18-34, 35-44, 45-64, 65+). As noted, age is an especially important control variable to include, since it correlates highly with civic and, especially, political engagement. By including age in the model, we can separate the impact of being in a particular age cohort from the impact of the educational environment (Miller and Shanks 1996; Putnam 2000; Wattenberg 2002; Zukin et al. 2006).¹⁶ All four dependent variables are ordinal, which calls for the use of ordered logit as an estimator.

<Table 2 about here>

Table 2 displays the results for Electoral Index, the form of engagement for which we have the strongest theoretical prediction. Each column reports results from defining educational environment at, respectively, the level of the state, metropolitan area/county and zipcode (recall that the environment measure also accounts for differences in educational attainment across age groups within each geographic unit). The inclusion of these contextual variables requires attention to the geographic clustering, and thus potential non-independence, of cases. Intuitively, the econometric problem is that, by design, all respondents within the same age cohort in the same geographic stratum have identical values for educational environment, and thus are not

¹⁵ See the online appendix for details on how the variables have been coded.

¹⁶ The reported models do not include the respondent's personal income, for two reasons. One reason is that NJS do not include personal income in their models. Another, however, is the high rate of missing data for this item (15% of all respondents in the NCES declined to state their income). Results from the models with income included (and, employing listwise deletion, fewer cases) are substantively identical. They are available upon request.

independent of one another. The standard errors of all the models, therefore, account for clustering by educational environment, defined as the respondent's age cohort within the relevant geographic unit.¹⁷

First, we find support for the Interaction Hypothesis. All three models have a negative interaction between Education and Educational Environment.

Second, evidence for the Geography Hypothesis is mixed. Across the three definitions of educational environment, the magnitude of the coefficient for Education X Educational Environment is essentially the same (-0.031 for the state, -0.037 for the MSA/County, and -0.032 for the zipcode). We can, though, have greater confidence in the coefficient for Education X Educational Environment as the educational environment narrows in scope. It is not statistically significant (p value of 0.54)¹⁸ when the environment is defined as the state, is marginally significant (p= 0.08) when it is measured at the MSA/County level, and is clearly significant for the zipcode (p =0.03).¹⁹ We thus find evidence for one of the two claims embedded within the Geography Hypothesis—we can be more confident in the interaction between Education and Educational Environment as the geographic scope gets smaller, but cannot conclude that its impact has a greater magnitude. More precisely, we can most safely conclude that the zipcode and the MSA/County are the relevant educational environments, both of which are more

¹⁷ Specifically, the models employ the “cluster” command in STATA 9.0.

¹⁸ All p values reported in the paper are for a two-tailed test.

¹⁹ Careful readers will note that in many of the models reported in Tables 2-5, the main effect for Years of Education is not statistically significant. This is owing to the high degree of colinearity with Education X Educational Environment. In all cases, removing the interaction from the equation restores a positive and highly significant coefficient for Years of Education.

localized than the state. In short, the evidence confirms that educational environment should be defined in local terms.

<Table 3 about here>

Third, we find support for the Electoral Hypothesis by comparing Tables 2 and 3. Table 3 displays the identical model specification as before, but applied to Voting, the Expressive Index, and the Civic Index. For these models, the educational environment is defined as the zipcode, but results are no different when the state and MSA/County are used instead. Across the board, we see that while the coefficient for Education X Educational Environment is negative, it does not approach statistical significance (the p values are 0.49 for Voting, 0.67 for the Expressive Index, and 0.36 for the Civic Index).²⁰

<Figures 1A and 1B about here>

Interactions are often difficult to interpret from coefficients alone, particularly for a maximum likelihood estimator like ordered logit. Determining the magnitude of the sorting effect is thus best accomplished graphically. Figures 1A and 1B display the interaction of education and educational environment (zipcode) for two illustrative categories, 25-34 year olds and 65+ year olds (with every control variable set to its mean value). The y axis reflects the score on the political activity index, while education at the individual level is arrayed along the x axis. The three lines represent respondents in educational environments at the 10th, 50th, and 90th percentiles for their age group.²¹ In both figures, we see that all the lines slope upward,

²⁰ Note that the results for the Civic Index do not change when group membership is modeled separately, whether group membership is operationalized as belonging to at least one group, active participation in at least one group, or a count of group memberships.

²¹ Thus, the precise values for the 10th, 50th, and 90th percentiles are different for the two groups.

They are:

indicating that more education correlates with more engagement. The slope is steepest, however, for people in an educational environment at the 10th percentile, and least steep for the educational environment at the 90th percentile. In other words, we see visual evidence of the fundamental claim underlying the sorting model—educational attainment at the individual level interacts with the educational environment.

The significance of accounting for educational environment is underscored when we note that for people with twelve years of education, the educational environment makes essentially no difference, while for people with eighteen years of education the difference across educational environments is substantial. For 25-34 year olds in a low-education environment (10th percentile), an increase in educational attainment goes a long way toward boosting their electoral activity, lifting their score on the electoral index from 0.63 for those who have a high school diploma to 1.04 to those with four years of graduate education, a gain of 0.41. In a high-education environment (90th percentile), the same increase in individual educational attainment lifts the electoral index score from 0.61 to only 0.78, an increase of less than half as much. Among 25-34 year olds, the gap between the electoral activity of someone with eighteen years of schooling (two years of post-graduate study) in an educational environment at the 10th versus the 90th percentile is 0.26, or roughly the same magnitude as moving from a high school diploma to having a Master’s degree in a model which does not account for the educational environment.²²

When comparing across the figures, we see the higher overall rate of engagement among the 65+ year olds. More importantly for present purposes, we also see that individuals’

	25-34 year olds	65+ year olds
10 th percentile	12.03	10.29
50 th percentile	13.07	11.57
90 th percentile	15.23	13.58

²² Results for the model underlying this claim are available upon request.

educational attainment has a bigger impact on the engagement of 65+ year olds (all three lines have a steeper slope than the corresponding lines for 25-34 year olds). The contrast between 25-34 year olds and 65+ year olds provides still another way of visualizing the sorting model. Because 65+ year olds are, on average, in less educated environments than 25-34 year olds, each year of a 65+ year old's own education has a larger impact on engagement. Among 65+ year olds, having 18 years of education puts you near the top of the class hierarchy, but among 25-34 year olds, a more highly-educated stratum of the population, that much education does not confer nearly as much status (and thus social network centrality).

Narrowing the Sorting Model

There are two ways to read the finding that the sorting model applies to electoral activity. The validity of the model has been affirmed, but its application has been narrowed. Rather than applying to many forms of engagement, as argued by NJS, this analysis finds that sorting only applies to electoral activity. However, it is important to stress that the limits placed on the application of educational sorting derive from the assumptions of the model as described by its originators. Sorting by education does matter for the most clearly competitive forms of engagement; it is just that not all forms of engagement are equally competitive, or even competitive at all. Our theoretical understanding of the sorting model is also enhanced with the observation that evidence for sorting only emerges when we define the educational environment by age cohort and at the local level, which is consistent with the claim that sorting by education takes place within localized social networks. Furthermore, the argument that sorting occurs within social networks finds still more support in the results which indicate that the relevant educational environment is the MSA/County and zipcode, not the state.

Since the sorting model applies to only one form of engagement, it naturally raises the question of whether it applies equally across the population. NJS report that the mechanisms

underpinning the sorting model are “apparently substantially the same for all major segments of the population,” (57) including males and females, blacks and whites. Given that we observe gender and racial differences in electoral activity in the new sorting model, does this statement still hold?²³

The general applicability of the sorting model can be tested by interacting the variables of interest—gender, race—with the key term that captures educational sorting: Education X Educational Environment. When this is done, the interaction with African American is nowhere near statistical significance (not shown), but the interaction with Female is highly significant (column 4, table 2). Since a negative coefficient for Education X Educational Environment indicates sorting by education, the positive coefficient for the interaction with gender means that women experience *less* sorting than men. A complete assessment of gender differences, however, requires accounting simultaneously for the complete set of variables necessary to interpret the interaction. This is best accomplished graphically, as in Figure 1C, which—holding everything else constant at its mean—compares the impact of Years of Education for men and women. For illustrative purposes, the figure displays results for 25- 34 year olds in high-education environment (90th percentile). Among men, the line is essentially flat, confirming the sorting effect: in places where average education is high, having more education does not make it more likely that you will be involved in political campaigning. For women, however, the line slopes upward, meaning that sorting matters less for them than men. Regardless of the educational environment, a woman’s education level has a positive impact on participation in electoral activity. In fact, even though women generally participate less in electoral activity than

²³ Ceteris paribus, African Americans are more likely to participate in electoral activity than whites, while women are less likely to do so than men (See Table 2).

men, women with advanced degrees in highly educated environments participate at about the same rate as men in an identical context.

<Figure 1C about here>

In sum, not only does sorting apply only to electoral activity, it applies mostly to men.

The Amplification Model: Political Knowledge and Tolerance

In contrast to democratic engagement, NJS argue that the educational environment has a very different relationship to what they call “democratic enlightenment,” which includes both political tolerance (i.e. respect for civil liberties) and knowledge. Instead of sorting, they argue that the educational environment has a cumulative effect on enlightenment—that is, more education in the environment increases enlightenment for everyone (the cumulative model). In their over-time analysis of repeated cross-sectional data, they find evidence to support the cumulative model’s impact on tolerance, but are unable to test it on knowledge.

Estimating the impact of a localized educational environment on tolerance and knowledge presents another opportunity to confirm, and elaborate, the theory proposed by NJS. Specifically, NJS find that an environment with greater average education is a rising tide, lifting the tolerance of everyone equally, regardless of an individual’s own level of education. This analysis tests whether that will also prove to be the case when accounting for the variation in educational environment across both age and place, and when applying the cumulative model to measures of both tolerance and knowledge. Incorporating the interaction between individual-level and environmental education also presents an opportunity to test an important, but unexamined, theoretical implication of the cumulative model. While NJS argue that more education in the environment raises the enlightenment of all equally, their own explanation of the mechanism at work implies an interaction between education at the individual level and the educational environment.

For characteristics of enlightenment, the educational environment represents the cognitive sophistication of those *with whom one has contact and by whom one is influenced*. In the cumulative model, a more educated environment works in a positive direction in its influence on certain characteristics of enlightenment, such as tolerance. (107, emphasis added)

In other words, NJS argue that it is through direct contact with people who have a higher level of education that an educated environment pushes up an individual's level of tolerance and, by implication, knowledge as well. Since "like attracts like," it is the highly educated who are most regularly in contact with others who have a high level of education. The greater the average attainment level within the educational environment, the more likely that highly educated people have a social network comprised of people with a similarly high level of education. We should thus expect that, in stark contrast to the model for electoral activity, the more education one has, the *greater* the impact of living in a highly educated environment—because of social interaction with others who have a high level of education and, therefore, enlightenment. In other words, a more educated environment *amplifies* the impact of an individual's own level of education (the *amplification model*).

To test the amplification model, the identical set of variables used to model the various forms of engagement are included in equations predicting both tolerance and knowledge.

Tolerance is measured with a single item that asks whether it should be permissible for someone to give a speech advocating the inferiority of women, while knowledge is tapped with three factual questions.²⁴ The amplification model presumes personal interaction as a mechanism,

²⁴ For the tolerance question, respondents could indicate that the speech should be permitted, should not be permitted, or "depends/both/neither/don't know" (coded as being in the middle of should and should not be permitted). The knowledge index comprises three standard factual

which requires a localized context for the educational environment. Zipcode is the smallest geographic unit available, and so that is the level at which the educational environment is measured. In operational terms, the amplification model predicts that the interaction between Education and Educational Environment is positive. Ordered logit is again the estimator, and the standard errors are adjusted for clustering by educational environment.

<Table 4 about here>

As displayed in Table 4, the amplification hypothesis finds support for both tolerance and knowledge; in each model, Education X Educational Environment is positive and highly significant. Figures 2A and 2B graph the cumulative effect for 25-34 year olds. In both figures, we see that the educational environment makes no difference for people with a high school diploma, but that as individuals' educational attainment rises the educational environment has a stronger impact. In short, the results for enlightenment are a mirror image of what was observed for electoral activity. The impact of education is larger (that is, amplified) within a more educated environment. Unlike the impact of sorting on electoral activity, analysis not shown also indicates that amplification's impact on democratic enlightenment does not differ by gender, nor by race.

<Figures 2A and 2B about here>

The evidence favoring the amplification hypothesis suggests a contagion effect—being around others with a high level of tolerance and knowledge begets greater tolerance and knowledge. If further evidence for a contagion effect holds up, it would support the claim that

questions: does the federal government spend more on Social Security or foreign aid?; which party is more conservative?; and what is the majority needed in Congress needed to overturn a presidential veto? Tolerance is modeled as a three-point scale, knowledge using four points (0-3 correct answers).

education has positive externalities for fostering these two democratic virtues. In other words, it is not just that individuals who have more education are more enlightened. Living in a community with others who are highly educated accelerates that enlightenment.

Note that cross-sectional data cannot determine whether there truly is a contagion effect, as these results are also consistent with a self-selection process whereby people who are more knowledgeable and tolerant choose to live in more highly educated environments. Contagion is mentioned as a mechanism worth pursuing in other research better designed to sort out causation.

Conclusion

The purpose of this paper is to revisit the theoretical claims made by Nie, Junn, and Stehlik-Barry about the need to account for relative, not just absolute, education in models of civic engagement. But while NJS focus their attention on variation in education levels by age, this analysis also accounts for variation in educational levels across place. In their essentials, these results concur with NJS: educational environment matters. In a finding consonant with NJS, when educational environment is defined in terms of both age and place, it has a cumulative effect on both political tolerance and knowledge. These findings also extend the work of NJS by showing that the cumulative effect is not the same for everyone, as the educational environment amplifies the impact of an individual's own educational attainment.

However, this analysis narrows another application of educational environment. Rather than applying to multiple forms of participation, it only applies to one—electoral activity. Accordingly, we can refine our understanding of the mechanism underlying educational sorting. NJS postulate that educational sorting applies because engagement is zero-sum—a gain by one equals a loss by another. The specific campaign-related activities to which sorting applies, however, are not truly zero-sum, since electoral activity usually entails mustering more supporters for your cause. Instead, these results are consistent with the argument that education

matters for electoral activity because of the greater stake those with more education, and thus greater social network centrality, have in the outcomes of an electoral contest.

In addition to age and place, this paper further narrows the sorting model by incorporating gender into the analysis. Results here indicate that the educational environment has less impact on women than men. For women, unlike men, educational attainment continues to have a positive relationship to electoral activity even in a high-education environment. This difference between men and women suggests that in spite of—or perhaps because of—women’s increasing levels of educational attainment, their social network centrality is less a matter of relative than absolute education. Sorting out the precise explanation for the gender difference is beyond the scope of this particular paper, but should be a priority for future research.

Because this paper’s objective has been to clarify the theoretical underpinnings of the sorting model, it has been limited to a single cross-sectional dataset with especially rich measures of civic and political participation. Consequently, it is silent on trends over time, obviously a primary concern for NJS and others who have written about the sorting model (Helliwell and Putnam 2007; Tenn 2005) Future research would profit from combining measures of educational variation over age and place and *time*. Americans’ tendencies toward both mobility and homophily suggest that, over time, people with similar education levels have increasingly clustered together. If so, we should expect relative education to have a diminishing impact on electoral activity. Confirmed empirically, such a finding would only further narrow the application of the sorting model.²⁵

²⁵ The analysis reported here sets the stage for the author’s future research on at least three issues relating to the sorting model. First, given that educational environment is best defined locally, we should also expect to see a greater effect for educational sorting on participation in local versus national politics. Second, over-time analysis in the U.S. will benefit from incorporating measures

Narrowing the sorting model actually broadens our understanding of “education as the universal solvent,” as these results suggest that education’s effect on civic engagement is not limited to the social status it confers. This finding, however, simply clears the way for research on what schools do to facilitate civic engagement. For example, virtually every study that employs education, including this one, treats all types of schooling as equal, when there are obviously wide disparities across high schools and colleges. Fortunately, research on civic education has begun to move in this direction, as recent studies have shown that racial diversity and the openness of the classroom climate matter for civic education (Campbell 2007, 2008), while the size of the school does not (Lay 2007). Clearly, though, much more can be learned about schooling’s effects on civic engagement.

Policymakers should be encouraged that the public investment in education appears to have a civic pay-off after all. At a time when an instrumental, careerist perspective on education dominates public discourse, we are reminded that education—at all levels—has a civic dimension as well. Hopefully, more policymakers will recognize the civic component of education, and partner with researchers in order to better understand, and even improve upon, it.

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of localized educational environments, also over time. Third, it remains an open question the degree to which sorting operates in nations other than the U.S.

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Table 1. Classifying Forms of Engagement (National Civic Engagement Study)²⁶

Electoral Index

		Factor loading (principal components)
Persuading others	When there is an election taking place do you generally talk to any people and try to show them why they should vote for or against one of the parties or candidates, or not?	0.6896
Displaying button, signs, stickers	Do you wear a campaign button, put a sticker on your car, or place a sign in front of your house, or aren't these things you do?	0.6980
Campaign contributions	In the past 12 months, did you contribute money to a candidate, a political party, or any organization that supported candidates?	0.6495
Volunteering for candidate or political organizations	[From volunteering sequence, respondent indicated having volunteered for] "A political organization or candidates running for office"	0.6485
Eigenvalue		1.81

Expressive Index

		Factor loading (principal components)
Contacting officials	[Now I'm going to read you a quick list of things that some people have done to express their views. For each one I read, please just tell me whether you have ever done it or not. (For each yes, probe: And have you done this in the last 12 months or not?)] Contacted or visited a public official—at any level of government—to ask for assistance or to express your opinion?	0.6527
Contacting the print media	Contacted a newspaper or magazine to express your opinion on an issue?	0.5831
Contacting the broadcast media	Called in to a radio or television talk show to express your opinion on a political issue, even if you did not get on the	0.5319

²⁶ This table largely replicates the factor analysis reported in Zukin et al. (see page 218), with only a few minor changes. As explained above, unlike Zukin et al., Vote Regularly has been omitted from the Electoral Index. For the reasons described in the paper these results also omit respondents under the age of twenty-five.

	air?	
Protesting	Taken part in a protest, march, or demonstration	0.4956
Written petitions	And have you ever signed a written petition about a political or social issue?	0.6090
Boycotting	Not bought something because of conditions under which the product is made, or because you dislike the conduct of the company that produces it?	0.4638
Canvassing	Have you worked as a canvasser—having gone door-to-door for a political or social group or candidate?	0.4262
Eigenvalue		2.06

Civic Index

		Factor loading (principal components)
Community problem solving	Have you ever worked together informally with someone or some group to solve a problem in the community where you live? If Yes, Was this in the last 12 months or not?	0.6969
Regular volunteering for a nonelectoral organization	Have you ever spent time participating in any community service or volunteer activity, or haven't you had time to do this? [Prompt is followed by a detailed list of specific types of organizations]	0.7610
Active membership in a group or association	Do you belong to or donate money to any groups or associations, either locally or nationally? Are you an active member of this group/any of these groups, a member but not active, or have you given money only?	0.7021
Raise money for charity	[Now I'm going to read you a quick list of things that some people have done to express their views. For each one I read, please just tell me whether you have ever done it or not. (For each yes, probe: And have you done this in the last 12 months, or not?) Personally walked, ran, or bicycled for a charitable cause—this is separate from sponsoring or giving money to this type of event? And have you ever done anything else to help raise money for a charitable cause?	0.5858
Eigenvalue		1.90

Voting

Regular voting	We know that most people don't vote in all elections. Usually between one-quarter to one-half of those eligible actually come out to vote. Can you tell me how often you vote in local and national elections? Always, sometimes, rarely, never
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Source: Zukin et. al. *A New Engagement? Political Participation, Civic Life, and the Changing American Citizen* (2006)

Table 2. Educational Environment and Electoral Index
Results from ordered logit

	(1)	(2)	(3)	(4)
Unit of aggregation for educational environment	State	MSA/County ²⁷	Zipcode	Zipcode (Wth Gender Interaction)
Education X Educational Environment	-0.031 (0.029)	-0.037* (0.021)	-0.032** (0.015)	-0.069** (0.025)
Female X Education X Educational Environment				0.059* (0.031)
Female X Education				-0.744* (0.399)
Female X Educational Environment				-0.882* (0.460)
Years of Education	0.507 (0.372)	0.586** (0.273)	0.520*** (0.191)	0.997*** (0.328)
Educational Environment	0.263 (0.423)	0.411 (0.310)	0.397* (0.224)	0.945** (0.384)
Female	-0.329*** (0.117)	-0.324*** (0.105)	-0.316*** (0.097)	10.429* (5.896)
African American	0.290* (0.175)	0.285 (0.176)	0.279* (0.166)	0.274 (0.167)
Asian American	-0.199 (0.282)	-0.175 (0.282)	-0.130 (0.310)	-0.126 (0.318)
Hispanic American	-0.130 (0.242)	-0.137 (0.219)	-0.114 (0.223)	-0.125 (0.224)
Married	0.262** (0.125)	0.249** (0.106)	0.245** (0.106)	0.253** (0.107)
Retired	-0.082 (0.152)	-0.054 (0.145)	-0.020 (0.146)	0.016 (0.146)
Homeowner	0.199* (0.117)	0.198* (0.116)	0.184 (0.122)	0.184 (0.122)
Religious attendance	0.131*** (0.028)	0.132*** (0.030)	0.134*** (0.031)	0.135*** (0.031)

²⁷ For those respondents who live in a metropolitan statistical area, the MSA is their educational environment. For respondents who live outside an MSA, educational environment is defined as their county.

Not in metropolitan area	-0.148 (0.130)	-0.181 (0.128)	-0.159 (0.124)	-0.160 (0.124)
Strong partisan	0.999*** (0.116)	1.000*** (0.107)	0.997*** (0.110)	0.998*** (0.110)
Independent	-0.579*** (0.185)	-0.587*** (0.171)	-0.582*** (0.166)	-0.565*** (0.167)
Residential mobility	-0.261 (0.162)	-0.254 (0.158)	-0.246 (0.153)	-0.251* (0.154)
Age cohort	0.072 (0.062)	0.093 (0.060)	0.115** (0.056)	0.111** (0.056)
Observations	2220	2219	2211	2211
Pseudo R-squared	0.065	0.065	.065	0.067

Robust standard errors in parentheses, clustering by educational environment (age cohort and geographic unit, as explained in the text)

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3. Educational Environment and Voting, Expressive Index, Civic Index, Political Knowledge, and Political Tolerance

Results from ordered logit/ Zipcode as unit of aggregation for educational environment

	(1) Voting	(2) Expressive Index	(3) Civic Index	(4) Knowledge Index	(5) Approve of free speech
Education X Educational Environment	-0.011 (0.017)	-0.006 (0.013)	-0.018 (0.019)	0.034** (0.017)	0.027* (0.014)
Years of Education	0.322 (0.217)	0.237 (0.171)	0.485* (0.251)	-0.121 (0.221)	-0.181 (0.171)
Educational Environment, Zipcode	0.147 (0.239)	0.135 (0.198)	0.243 (0.281)	-0.401 (0.254)	-0.303 (0.205)
Female	-0.471*** (0.109)	-0.257*** (0.091)	-0.067 (0.093)	-0.998*** (0.100)	0.150 (0.134)
African American	-0.125 (0.186)	-0.098 (0.170)	-0.294* (0.171)	-0.488*** (0.185)	-0.191 (0.207)
Asian	-0.552 (0.358)	-0.895*** (0.322)	-0.012 (0.288)	-0.759** (0.384)	-0.987** (0.401)
Hispanic	-0.467** (0.238)	-0.280 (0.196)	-0.378* (0.200)	-0.154 (0.190)	-0.794*** (0.212)
Married	0.244** (0.121)	0.063 (0.098)	0.162 (0.103)	0.138 (0.105)	0.290** (0.137)
Retired	0.340* (0.198)	-0.272* (0.146)	-0.459*** (0.149)	-0.159 (0.162)	-0.207 (0.194)
Homeowner	0.504*** (0.135)	0.070 (0.119)	0.352*** (0.123)	0.053 (0.118)	-0.227 (0.157)
Religious attendance	0.123*** (0.036)	0.020 (0.029)	0.291*** (0.030)	0.000 (0.031)	-0.139*** (0.041)
Not in metropolitan area	0.118 (0.137)	-0.272** (0.118)	0.068 (0.116)	-0.243* (0.131)	-0.002 (0.156)
Strong partisan	0.807*** (0.123)	0.419*** (0.105)	0.181* (0.108)	0.547*** (0.107)	0.036 (0.151)
Independent	-0.856*** (0.174)	-0.143 (0.129)	-0.200 (0.138)	-0.626*** (0.154)	-0.298* (0.173)
Residential mobility	-0.128 (0.146)	-0.198 (0.128)	-0.531*** (0.136)	0.154 (0.136)	-0.192 (0.189)
Age cohort	0.503*** (0.062)	-0.057 (0.055)	-0.072 (0.054)	0.186*** (0.057)	0.067 (0.077)
Observations	2151	2211	2211	2211	2204
Pseudo R-squared	0.123	0.035	.083	0.128	0.049

Robust standard errors in parentheses, clustering by educational environment (age cohort and geographic unit, as explained in the text) * significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1A. Evidence for the Sorting Model , I

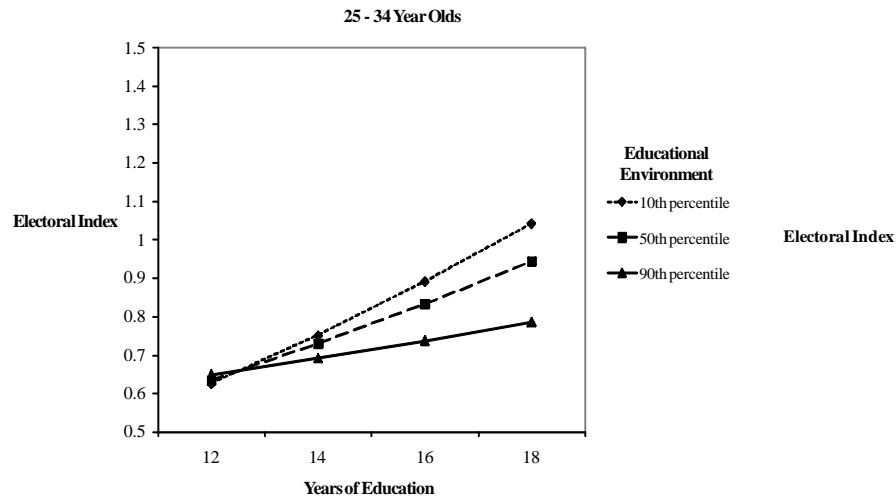


Figure 1B. Evidence for the Sorting Model , II

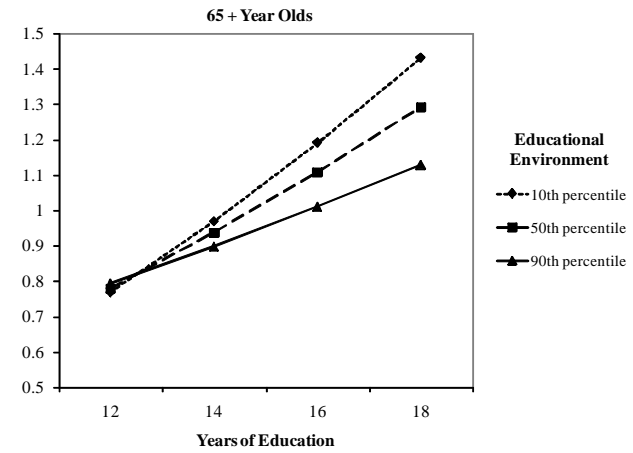
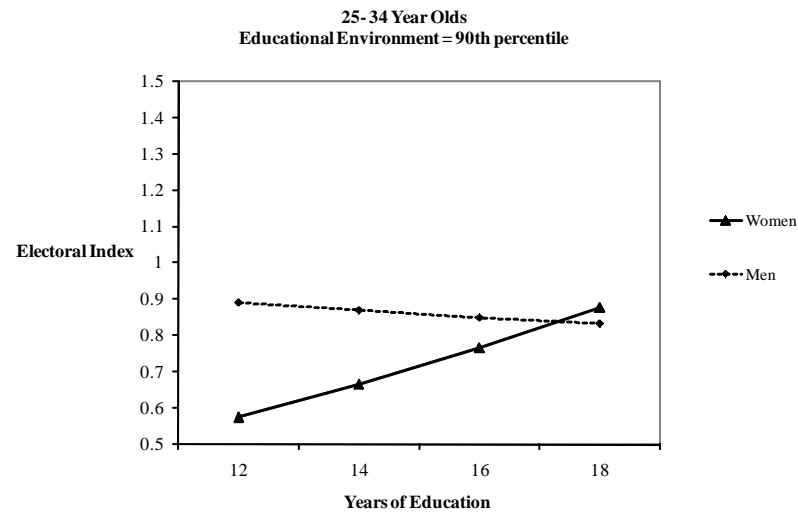


Figure 1C. Sorting Applies More To Men Than Women



All control variables set to their means.

Figure 2A. Evidence for the Amplification Model , I

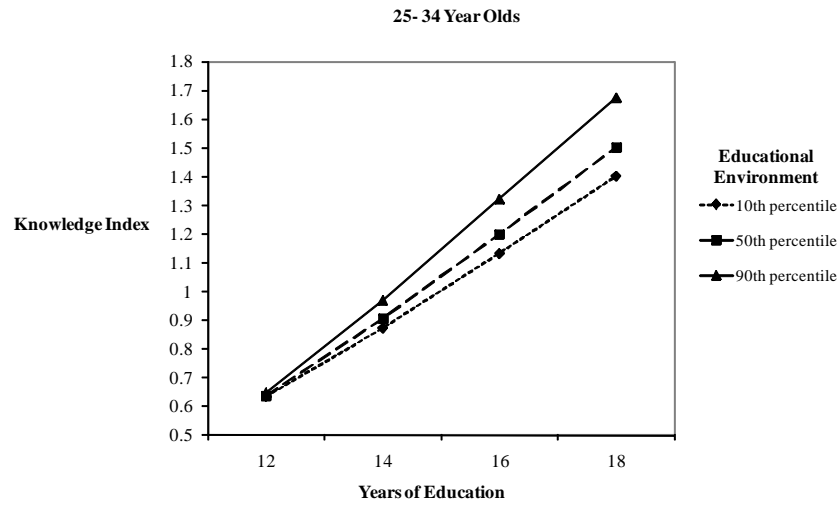
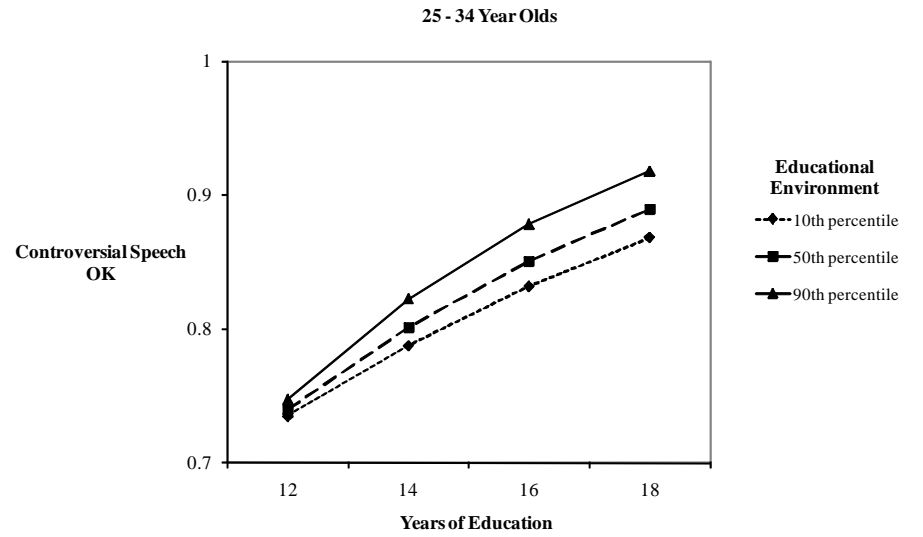


Figure 2B. Evidence for the Amplification Mode I , II



All control variables set to their means.