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# Stability and change in partisan political identification: Implications for lowering the voting age

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ABSTRACT

Around the globe, governments are experimenting with lowering the voting age to 16-years-old as a way to turn around recent declines in civic participation. However, one concern is that younger voters will be more susceptible to parental and community influence. We used voter records from two U.S. states to explore stability and change in partisan identifications as a function of age in order to assess the likelihood that younger voters are more susceptible to social influences. In general, little evidence was found to suggest that teenagers' partisan identifications are substantially more influenced by families, communities, and historical events than older adults. In a final set of analyses, we examined partisan identification from voter records in Takoma Park, Maryland after it lowered the voting age to 16. To test for an effect of lowered voting age, we compared household voting patterns over time in Takoma Park to those in Maryland and Pennsylvania. A time series analysis did not show any difference between patterns in Takoma Park and patterns in Maryland and Pennsylvania, suggesting that lowering the voting age had no discernable impact on partisan identifications. The paper contributes to the expanding research base indicating that lowering the voting age has no apparent ill-effects on young people or their communities and will increase the political representation of an age cohort that can vote responsibly.

## Household and community effects and contexts of lowering the voting age

Recent research suggests a decline in civic participation among young people (Hart & Youniss, 2018). One suggestion for reversing this trend is to lower the voting age to 16. This idea rests on the assumption that 16-year olds, who are more likely living with their parents who model voting and in communities in which voting is the norm, will vote at higher rates than 18-year olds, who are less likely to be living with voting parents and in familiar communities. Indeed, recent research supports this idea. Austria created a natural experiment when it lowered its voting age from 18 to 16, allowing a comparison of the first-time voting rate of 18–20 year-olds to that of 16–17 year-olds. Zeglovits and Aichholzer (2014) reported that after the law took effect, these 16–17 years olds voted at higher rates than those in the 18–20 years old group. Indeed, 18–20 year- olds voted at rates 10–15 percentage points less than the rest of their communities, while 16–17 year-olds voted at the same rates as their communities (Zeglovits & Aichholzer, 2014). The authors explain these trends by pointing to the observation that 16- and 17-year-olds are more likely than older teens to be living with their families, attending local schools, and residing in local communities, all of which provide social stability and political orientation. Importantly, voting can be understood as a habit that persists over a lifetime (Coppock & Green, 2016). This means that the increase in first-time voting rates among teenagers could have the long-term benefit of increasing political participation.

Although preliminary evidence suggests that lowering the voting age can have the benefit of increased political participation, it is important to consider the possibility of adverse effects as well. For example, the family and community socialization that putatively increases voter participation among 16–17 year-olds may also pressure teens into ideological positions that at a later age they would not choose for themselves.

In legislative debate concerning lowering the voting age in California, one of the few officially registered objections is that teenagers are easily swayed by parents and teachers (Wray-Lake, Wilf, & Oosterhoof, 2019). The rationale seems to be that lowering the voting age could precipitate a premature partisan identification in teenagers too young to reason independently of their parents. The imagined consequence is that teenagers would mimic their parents' political identifications and unfairly amplify the electoral power of parents or reflect only the ill-reasoned adoption of the partisan preferences of

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community members. If indeed adolescents are particularly open to social influence concerning political partisanship, then the study of political socialization can benefit from understanding the reasons for it.

To add to the discourse on policy related to voting age, we examined the developmental plasticity of partisan identification. We first describe why social influence might be expected to influence partisan identification. Next, we use voter registration data to assess the associations of family and community transitions with changes in partisan identification, and examine as well the correlations of historical events with changes in partisan identification in younger and older voters. Finally, we examine household partisan identifications in a municipality that lowered the voting age to 16.

## Social influence on partisan identification

### *Partisan identification*

Partisan identification refers to the political party to which an individual belongs. Partisan identification has at least two components: ideology and social identity. Political ideologies encompass values and preferred public policies. For example, in the United States the Republican party has traditionally valued conservatism and embraced free markets, immigration, and low taxes. Importantly, partisan identification is also a social identity; research has shown that Republicans will adopt policy positions discrepant with their values if other Republicans—other members of their group—do so (Barber & Pope, 2019). The component nature of partisan identification means that teenagers' party affiliations might be influenced in several ways.

### *Sensitivity to social influence*

Research suggests that there is a high degree of longitudinal stability in partisan identification. Tucker, Montgomery, and Smith (2019) found very high stability in partisan identification in a national survey of adults who repeatedly judged the strength of their political identifications on a 7-point scale between 2011 and 2016, with stability at its highest among adults 55 years old and older. In adults, then, the expectation should be that the effects of social influence on partisan identification ought to be modest in magnitude.

### *Families*

Bronner and Ifkovits (2019) review research that suggests that 16- and 17-year-olds are more embedded in family contexts than are older teenagers, which ought to amplify parental influence on partisan identification on younger teenagers. There is considerable evidence that teenagers do resemble their parents in the components of partisan identities. Parents and children are similar ideologically. The correlation of a parent's score on the liberal-conservative dimension with that of his or her teenager can be quite substantial (~ 0.60; Hufer, Kornadt, Kandler, & Riemann, 2019). This association is smaller in magnitude with parents and their young adults' on the liberal-conservative dimension (~0.50; Hufer et al., 2019), which is consistent with the idea that teenagers are more susceptible to the influence of parents than are young adults.

There are many reasons to suppose that the family environment influences partisan identity. People who live together have regular opportunities to shape each other's political beliefs. For example, in marriages, the spouse most committed to a political affiliation might persuade the partner to adopt the same identity, and as parents create a social environment that shapes children into reflections of their parents. Iyengar, Konitzer, and Tedin (2018) suggest that this is the process by which youth come to adopt the same political values as their parents.

However, recent evidence casts doubt on this process. A traditional assumption of social influence theory is that there is a dosage effect: the longer an individual is exposed to an influence, the greater the expected effect. Surprisingly, there is no dosage effect among spouses' partisan identifications; couples that are just married are as similar to each other in partisan attitudes as are couples that have been together for decades (Iyengar et al., 2018). This means that the experience of living closely with another appears to do little among adults to increase similarity in partisan affiliation. Thus, partisan similarity is a consequence of assortative mating in which people choose to marry those with similar ideology rather than a consequence of social influence (Iyengar et al., 2018).

Certainly it could be argued that social influence is much more powerful in parent-child dyads than between parents as a result of dependence of one on the other, or immaturity—social, neurological or both—that makes children sensitive to social influence concerning political matters. Indeed, the higher correlations between parents and their teenagers versus parents and their young adults in ideological orientation supports this (Hufer et al., 2019). Nonetheless, the fact that relationship influence does not seem to operate in partisan self-identification among adults ought to be a caution to the assumption that within family similarity in political identity is largely a consequence of persuasion or modeling.

We now turn to a discussion of the other possible source of family influence on partisan identity – genetic contributions. Most of this evidence derives from behavioral genetic work that examines correlations among family members with varying degrees of genetic relatedness. The best work of this type suggests that ideological similarity is correlated with genetic relatedness (Hufer et al., 2019). There is little evidence in the behavioral genetic research that growing up in the same household—a common family environment—influences political ideology. Instead, Hufer et al. (2019) argue that genes make a much larger contribution to within family similarities. This research also points to the importance of non-familial environmental influences in shaping partisan identifications. In other words, environmental influences are not irrelevant to the development of a political ideology, but these environmental influences are largely unshared by members of the same family.

Thus, while there is not complete consistency, the behavioral genetic research (Hufer et al., 2019) suggests both that adolescence is a particularly sensitive period for partisan identification and that family influence is particularly powerful during the teen years; research on partisan preferences suggests that they are quite stable (Tucker et al., 2019). What the existing research does not make clear is whether lowering the voting age magnifies the impact of family influence on partisan identification. If indeed 15- and 16—year-olds are particularly sensitive to social influence, then it is possible that efforts of parents with teenagers on the cusp of voting to shape their political views or the need for mid-teens to make premature political identifications in order to vote could lead to greater intra-familial similarity in partisan identification.

In many analyses that follow, we examine young voters in the contexts of inferred families. We assume that registered voters residing at the same address and sharing the same last name are members of the same family, although we recognize these criteria will exclude the families comprised of members with different last names.

### *Communities*

Research about the influence of community on voting behavior provides some evidence for a magnification of social influence during this early teenage period. Chyn and Haggag (2019) examined the consequences of essentially-random relocation of some families residing in public housing to more affluent neighborhoods resulting from the demolition of public housing on later voting of those moving as children and teenagers and those moving as adults. Relocation substantially increased later voting among those moving to more affluent neighborhoods as children or teenagers, but had no effect on the likelihood of voting in their parents.

Childhood community experiences may also affect partisan identifications. Billings, Chyn, and Haggag (2020) studied the effects of changes in school segregation in elementary and middle school students on later adulthood party affiliations. The researchers studied students in the Charlotte-Mecklenburg school district who were enrolled before and after new school district boundaries were drawn; the new boundaries had the effect of decreasing substantially the number of students attending integrated schools. Importantly for causal identification, the new school boundaries were independent of geographical features and census designations, allowing comparisons of adult outcomes of children who had lived on the same block but were arbitrarily assigned to different schools that varied in racial composition. The authors hypothesized that white students with substantial exposure to black students in school would develop favorable attitudes towards blacks. In North Carolina, blacks are largely Democrats, and these attitudes are correlated with membership in the Democratic party, leading to the prediction that white students attending integrated schools would be less likely to identify as Republicans in adulthood than white students who attended schools with largely white populations. The analyses confirmed their predictions.

### *Historical events*

Ghitza and Gelman (2014) examined survey data from hundreds of thousands of individuals collected over the last 60 years to identify cohort differences in political affiliation and to identify the sources of these differences. Their analyses suggested that the political events of childhood and adolescence weighed especially heavily in the formation of partisan identifications. Specifically, Ghitza and Gelman (2014) claimed that "the formation of partisan presidential voting trends peaks around the ages of 14-24" (p. 3). Using data from the American National Election Survey, Bartels and Jackman (2014) found strong effects of recent preceding political experiences on partisan identification, and estimated that eighteen-year-olds are at the peak of sensitivity. Extrapolating from the findings of Bartels and Jackman (2014), 16- and 17-year-olds would be even more sensitive to social context than 18- and 19-year-olds.

Both the Covid −19 pandemic that resulted in hundreds of thousands of American deaths and the most widespread political protests in American history occurred in the Spring of 2020. Public opinion polls suggested that the Republican President was judged at fault for the protests and the pandemic (Karson, 2020). The dramatic events of the Spring of 2020 allow a test of historical events on changes in political affiliations. Given the polls suggesting that the public blamed the leader of the Republicans for the disasters, one possibility is that new voters registered as Democrats and others changed their affiliations.

### *Takoma park*

Takoma Park, Maryland was the first municipality in the United States to lower the voting age to 16 for municipal elections. The enabling legislation was passed in May of 2013, allowing 16-year-olds to vote for the first time in November of 2013. By November of 2015, those who had been made eligible to vote at age 16 two years earlier in Takoma Park were also able to vote in state and federal elections.

If lowering the voting age in Takoma Park had the effect of increasing within family partisan identification, this effect should be evident in voter registration records. Voter registration records indicate the date of registration along with partisan identification. In the analyses that follow, we examined the time series for within-family homogeneity in Takoma Park and for the rest of Maryland. If lowering the voting age increases parental influence on partisan identification, then change in the percentage of households in Takoma Park of a single partisan identification ought to be reflected in a shift in the time series at the date when the enabling legislation was passed. Because we used state voting records for this analysis, we used 2015 as the year in which the full impact of the lowered voting age ought to be evident in partisan identification. By 2015, the first voters eligible to vote in municipal elections were also eligible to vote in state elections. Specifically, in the analyses that follow, we tested the hypothesis that there is a deflection in the time series for partisan-homogenous households occurring in 2015 for Takoma Park.

Conceptually, the time series analysis follows patterns of within-family homogeneity over time in Takoma Park and compares those to patterns over time in the rest of Maryland and in Pennsylvania. The Maryland and Pennsylvania data act as a sort of control. If a pattern in Takoma Park data is replicated in Maryland and Pennsylvania, then that pattern is unlikely to be due to a change in voting age.

### *Analytic plan*

To address questions concerning parental and community influences on partisan identification, we draw on voter registration data from Maryland and Pennsylvania. Each data set has millions of observations of party affiliation. Partisan identifications recorded in voter records appear have causal effects on political beliefs and behavior (Gerber, Huber, & Washington, 2010). Moreover, partisan identifications in voter registrations are public pronouncements of affiliation, and are used by political parties for door-to-door canvassing, get-out-the vote efforts, and direct mail campaigns. Because partisan identifications declared in voter registrations influence political behavior of the individuals who declare them and the political parties that they join through registration, voter registration data provide real insight into the political lives of individuals.

On the other hand, voter registration data are incomplete, lacking much information of interest to social scientists, and are relatively coarse measurements that may occlude subtle effects. For example, partisan identification in voter registration lists is a nominal variable (e.g. "Democrat"), not allowing of a report of the extent of identification with a party. Moreover, in some of our analyses we examine change in political affiliation which requires that a voter make changes in government records which may deter some from switching parties. Because of the limits of voting registration data, our analyses cannot "prove" that effects do or do not exist (McShane, Gal, Gelman, Robert, & Tackett, 2019).

To examine stability and change in political affiliations we drew on voter registrations from Pennsylvania, which offer date of births in the public files.

To address the effects of lowering the voting age on family influences on partisan identifications, we use voter registration records in Maryland. Maryland contains the only communities in the United States that have lowered the voting age to 16, allowing an analysis of the potentiating effect of lowering the voting age. Only one of these communities, Takoma Park, lowered the voting age long enough ago to allow for the analyses described below.

## Methods

### *Participants*

Voting registrations from Pennsylvania were used. The first set, T1, drawn on November 11, 2018, included records for 8,609,300 voters from 380 municipalities (these data are available from the Pennsylvania Department of State (https://www.dos.pa.gov/VotingElections/Documents/Elections%20Division/requestvoterlists.pdf). Voting registrations from Pennsylvania were also drawn on April 6, 2020 (T2) and matched using voter ID numbers to the T1 draw. The T2 data were used to assess changes in partisan identifications. A third draw of Pennsylvania voting registrations on August 10, 2020 was used to examine change in partisan identification resulting from the devastating pandemic occurring in the spring of 2020 and the country's largest protests in history resulting from the murder of George Floyd, a Black man, at the end of May 2020.

Voting registrations were available for 4,005,415 Maryland residents on April 14, 2019, living in 455 municipalities; there were 14,533 registered voters in Takoma Park (these data are available from the Maryland State Board of Elections: https://elections.maryland.gov/voter_registration/stats.html). The voter file contains partisan identification (Democrat and Republican, among other identifications), date that the individual registered to vote in the county, street address, and municipality of residence.

In Pennsylvania, at T1, 38% of the voters were registered as Republicans ($N$ = 3,277,959) and 48% as Democrats ($N$ = 4,111,338) with 1,227,754 registering as either unaffiliated or a member of another party.

In Maryland, 26% of the voters were registered as Republicans ($N$ = 1,014,667) and 56% as Democrats ($N$ = 2,191,779) with the remainder identifying as unaffiliated ($N$ = 736,545) or as members of other parties.

We considered households to be 2 or more individuals with the same last name living at the same address. Partisan homogeneity was defined in households as all members registered as Democrats or all Republicans. We reasoned that new registrations are disproportionately those of newly eligible voters. In the Pennsylvania data in which birthdays are available, those registering to vote in 2018 and residing in households with two other registered voters with the same last name had a median age of 19. We use the most recent year of registration of a household member to index young voters in Maryland. To assess whether household composition affects partisan identification, we examined households with one older voter and one new voter (to capture 1 parent registered to vote, 1 newly registered youth), households with two older voters and one new voter, and four-voter households with one member newly registered. We constructed a time series for Maryland for the percentage of households with two members who all are either Democrats or all are Republicans for each year of the most recent registration. We constructed a time series for Pennsylvania following the procedure described above for Maryland.

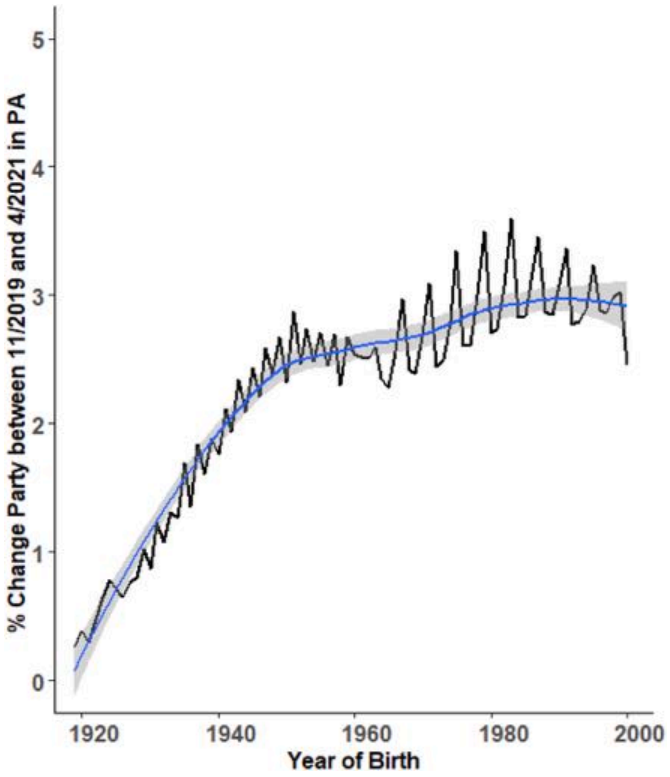


**Fig. 1.** Percent Pennsylvania Voters who changed party identification between November 2019 and March of 2021 as a function of year of birth. The black line tracks the year-by-year data; the blue line represents loess smoothing of the year-to-year numbers. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

## Results

To investigate the idea that partisan identity is consistent over time, we plotted the percentage of Pennsylvania voters who changed political parties over a 17-month span between T1 and T2 as a function of year of birth (Fig. 1). The rate of change suggested in Fig. 1 is consistently low, always below 3%, suggesting that partisan identification as measured through voter registration is very stable in Pennsylvania during 2019, 2020, and 2021. The graph suggests that older voters are substantially more stable than voters born in 1950 and after. Both findings are consonant with Bronner and Ifkovits (2019).

Because we do not have data for 16–17 year-olds, we cannot say for certain that they are more or less plastic in partisan identification than 20–30 year olds, but a linear extrapolation of the data Fig. 1 to younger voters does not suggest that teenagers are more plastic in party loyalties than young adults. An argument that partisan identification is stable at age 18 but substantially malleable at ages 16 and 17 is proposing a developmental trajectory inconsistent with what is found with political attitudes (Rekker, Keijsers, Branje, & Meeus, 2015) and in related areas such as personality (Damian, Spengler, Sutu, & Roberts, 2019).

### *Family influences*

Fig. 2 depicts intra-household partisan identification as a function of the year of the most recent party identification for a member of the household and number of registered voters in the household in Maryland. Fig. 3 provides parallel graph for voters in Pennsylvania. Both graphs suggest substantial within household homogeneity. In Maryland, for example, where 56% of the voters register as Democrats, under the assumption that partisan identification is random, one would expect only 17% of three-person households to be all Democrats, and a little less than 2% of three-person households to be all Republican. In Pennsylvania, if partisan identification were random one would expect about 10% of three-person households to be all Democrats and about 5% to be all Republicans. Rates of intra-family homogeneity in Figs. 2 and 3 are 5 to 15 times higher than would be expected under assumptions of random assignments to households.

Perhaps surprisingly given the increased partisanship in the country as a whole, within-household partisan homogeneity actually decreases with younger voters in both Maryland (Maryland, Fig. 2) and Pennsylvania (Fig. 3) for 2-, 3-, and 4-person households. One possibility is that this is a consequence of social influence; as family members live together longer, families become more similar. Another explanation is that intra-household homogeneity is decreasing for every type of household as families move through historical time. A third possibility is that households that had 3 or 4 members all with the same political affiliation in years prior to 2018 are less likely to have a member move to a new address than are households with at least 1 member with a political identification discordant with those of the other members of the household.

We used the longitudinal sample of Pennsylvania voters to assess the effects of family proximity and age on change in partisan identification. Social influence is traditionally imagined to be in part a function of physical distance, with longer distances decreasing social impact (Latané, 1981). This leads to the prediction, offered by Bronner and Ifkovits (2019), that moves to a new address not shared with one's family ought to be associated with more change of political affiliation than is true for those who move with their families. Finally, if family influence is particularly pronounced for young voters, then moves away from one's family ought to be associated with higher rates of change of political affiliation than is true for older voters.

We examined these ideas in Fig. 4, where we plot the probability of switching party affiliations after a move for voters who moved with their families (solid lines) and those who moved without their families

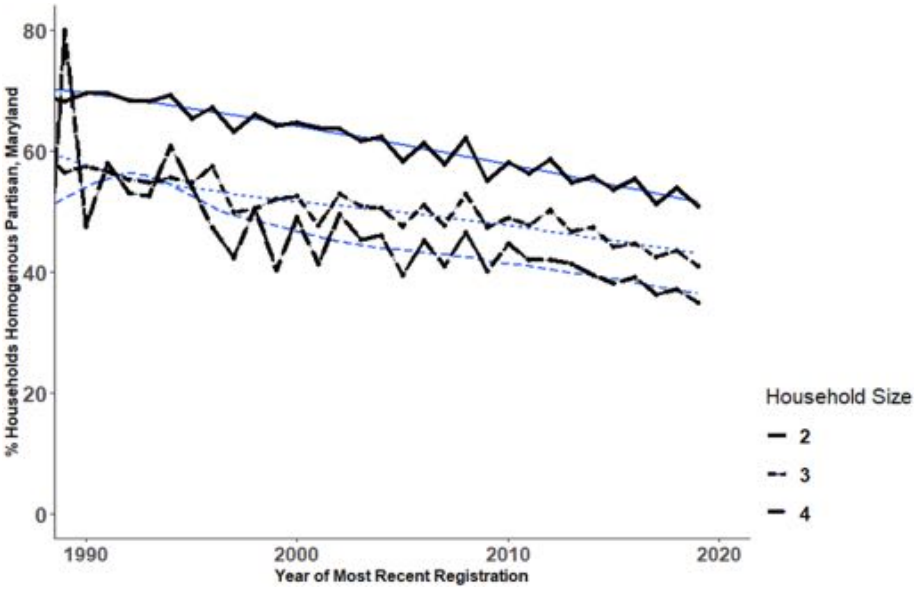


**Fig. 2.** Within-household partisan homogeneity as a function of year of most recent voter registration within Maryland (with data for Takoma Park removed). The black lines track the year-by-year data with blue lines smoothing the year-to-year numbers. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

(dotted lines). This group included all 1948 voters born after 1980 who were part of a 3-voter households and who moved between T1 and T2. The dotted lines are largely above the solid lines for most birth years, suggesting that voters who move away from families change parties more frequently than those who move with their families. This finding is consistent with the hypothesis that increasing distance between oneself and one's family decreases the influence of the latter on one's political affiliation. It is also possible that people are more likely to move away from their families—increasing physical distance—if they have political differences with their families.

Younger voters do not seem to be more susceptible to the influence of their parents than older voters. Fig. 4 suggests that younger voters who move away from their parents are no more likely than older voters to change parties after they move. It does not appear that younger voters who move away from their families, and by doing so presumably experience reduced family influence, are more likely to change political party affiliation than are substantially older voters who move away from their families.

## Community influences

It is possible that communities influence partisan identifications. Perhaps those who live in municipalities that are relatively homogenous in respect to partisan identification are likely to adopt the most common partisan identification in the community as their own. We would therefore expect that household partisan homogeneity would be highest in communities in which most voters belong to one political party or another. To explore this possibility, we compared household partisan homogeneity for communities in which more than 50% of the population was registered as a Democrat (Fig. 5) to partisan homogeneity for communities where less than 50% of the population was registered as a Democrat (Fig. 6). Indeed, in Democratic communities, about 70% of three-voter households share the same partisan identity, while that is true for only 50% of households in communities in which Democrats are a minority.

Another way to assess the influence of communities on partisan identification is to examine the probability that a child will choose to register as a member in a political party different than that of the rest of the family. If the partisan identifications of friends and neighbors influence a teenager's political affiliation, then we would expect that the probability with which a child of two non-Democrats registers as Democrat would increase with the percentage of registered Democrats in the municipality. To examine this possibility, we looked at three person households with two non-Democrats, at least one of whom was registered as a voter before 2010, and which also contain 1 voter who

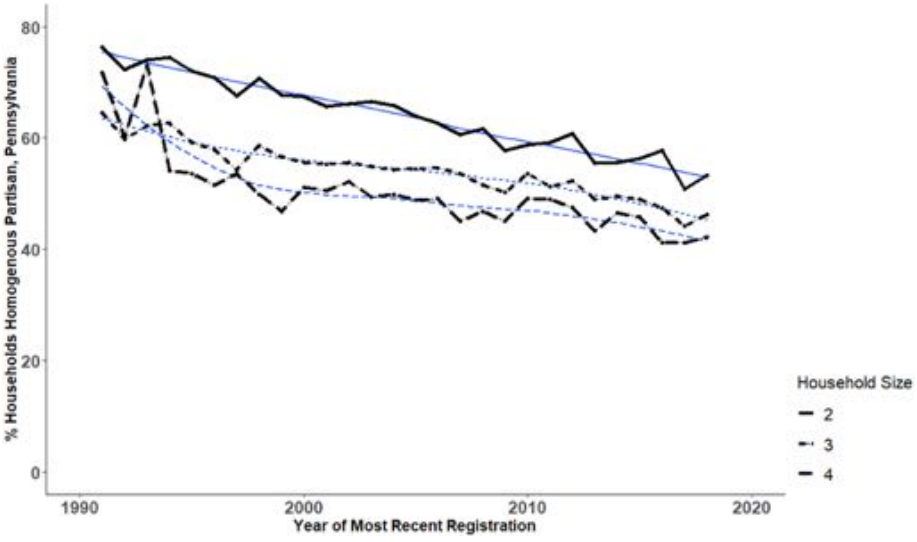


**Fig. 3.** Within-household partisan homogeneity as a function of year of most recent voter registration within Pennsylvania. The black lines track the year-by-year data with blue lines presenting loess smoothing of the year-to-year numbers. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

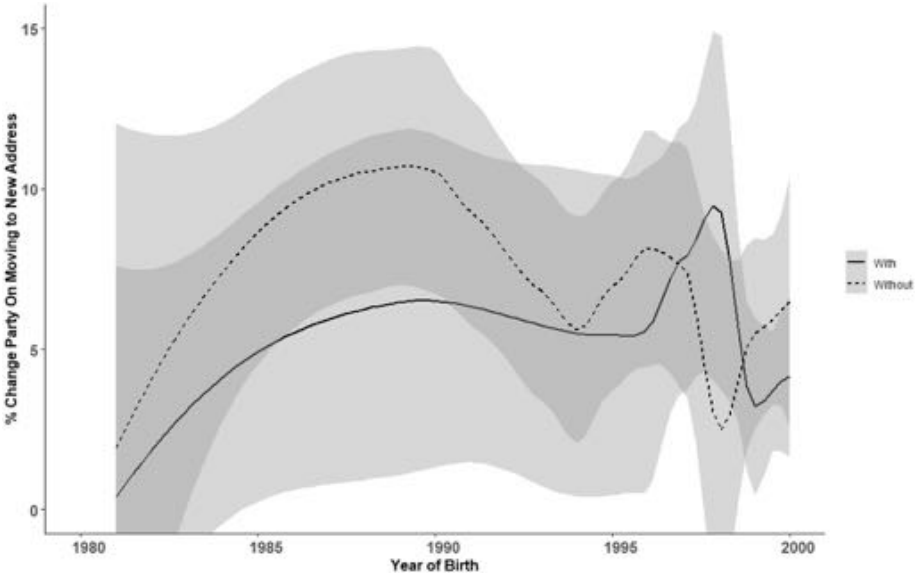


**Fig. 4.** Loess-smoothed lines for the percent of Pennsylvania voters who change partisan identification with change in residence as a function of year of birth and whether their families do or do not reside at the new address.

registered as a Democrat in 2018. This specification should capture (albeit imperfectly) families in which two parents are non-Democrats and their child registers as a Democrat. If community partisanship influences a young person's partisan affiliation, then as a community becomes increasingly Democratic, children of two non-Democrats ought to increasingly register as Democrats. In fact, as seen in Fig. 7 (Maryland) and Fig. 8 (Pennsylvania) there appears to be little relationship between the preponderance of Democrats in a town and the likelihood that a new voter will register as Democrat if the rest of the house is not registered as Democrat. We also failed to find a linear relationship between the percentage of voters registered as Republican in a municipality and the likelihood that a child of two non-Republicans would self-identify as a Republican (these graphs are conceptually parallel to Figs. 7 & 8, and are available from the authors).

## Historical events

Both the Covid −19 pandemic that resulted in hundreds of thousands of American deaths and the most widespread political protests in American history occurred in the Spring of 2020. Public opinion polls suggested that the Republican President was judged at fault for the protests and the pandemic (Karson, 2020). The dramatic events of the Spring of 2020 allow a test of historical events on changes in political affiliations. Given the polls suggesting that the public blamed the leader of the Republicans for the disasters, one possibility is that new voters registered as Democrats and others changed their affiliations.

Fig. 9 depicts the percentage of newly registered voters in Pennsylvania identifying as Democrats as a function of date in 2020. The vertical dotted blue line corresponds to the date of the murder of George Floyd, which triggered the widespread public protests. There is little evidence from Fig. 9 that the tragic events of early 2020 shifted registering voters towards the Democratic Party, though there is a limited increase among young voters following the murder of Floyd.

Between April 10 and August 10, 2020, about 1% (~90,000) of Pennsylvania registered voters changed political affiliations. Among those 25 and older, more changed from Democrat to Republican (39,669) than switched from Republican to Democrat (29,591). Young voters were more likely to change affiliations from Republican to Democrat (2707) than the reverse (1000). It is possible that assessing party change at dates surrounding a presidential election, when interest is highest, might yield different findings.

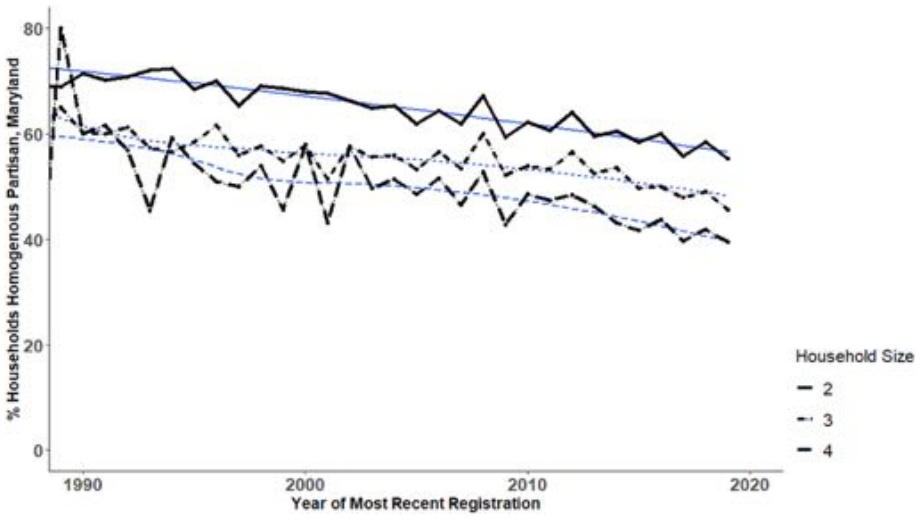


**Fig. 5.** Within-household partisan homogeneity as a function of year of most recent voter registration within Maryland for municipalities in which more than 50% of the voter population is registered as a Democrat. The black lines track the year-by-year data with blue lines presenting loess smoothing the year-to-year numbers. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

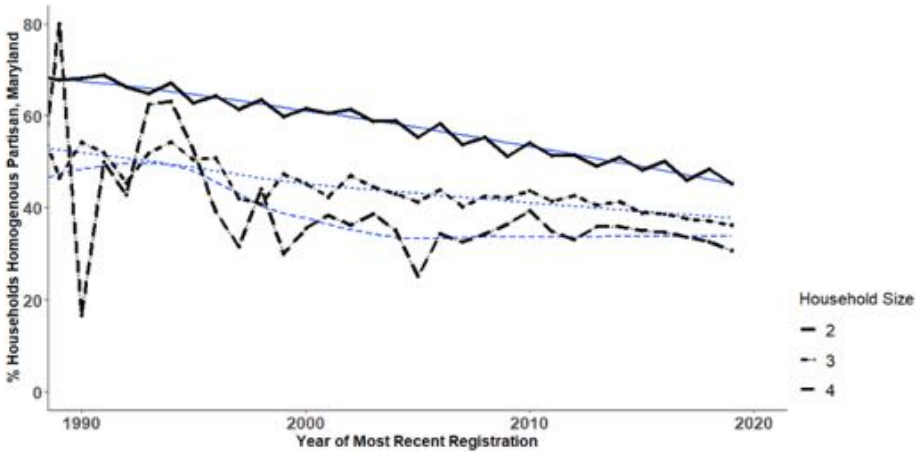


**Fig. 6.** Within-household partisan homogeneity as a function of year of most recent voter registration within Maryland for municipalities in which less than 50% of the voter population is registered as a Democrat. The black lines track the year-by-year data with blue lines presenting loess smoothing the year-to-year numbers. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

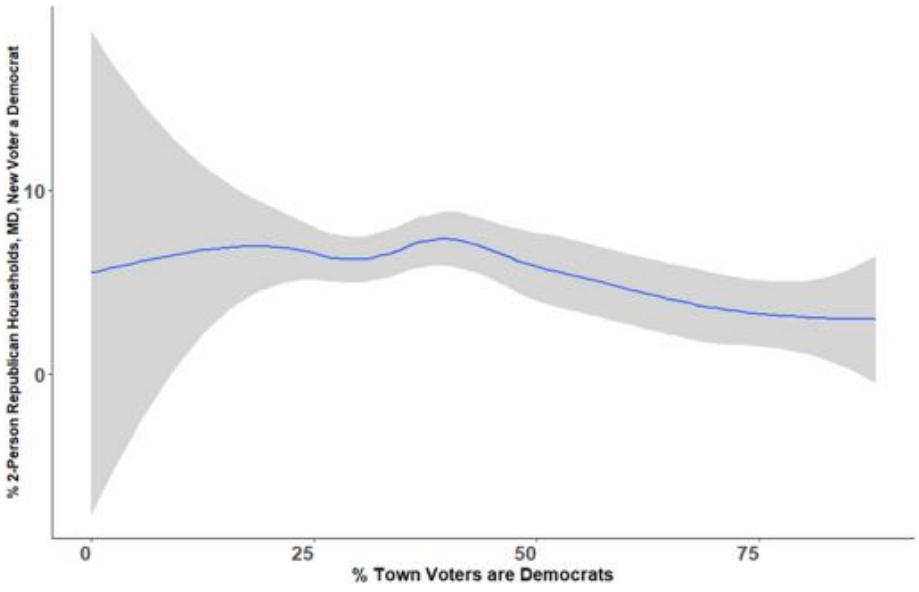


**Fig. 7.** Loess smoothing of percent of Maryland households in which 2 household members are not Democrats with one of these registered to vote before 2010 and 1 household member registered as a Democrat in 2018 as a function of the household's municipality's percent of the registered voters self-identified as Democrats. Standard error of the estimate is represented by the shading.

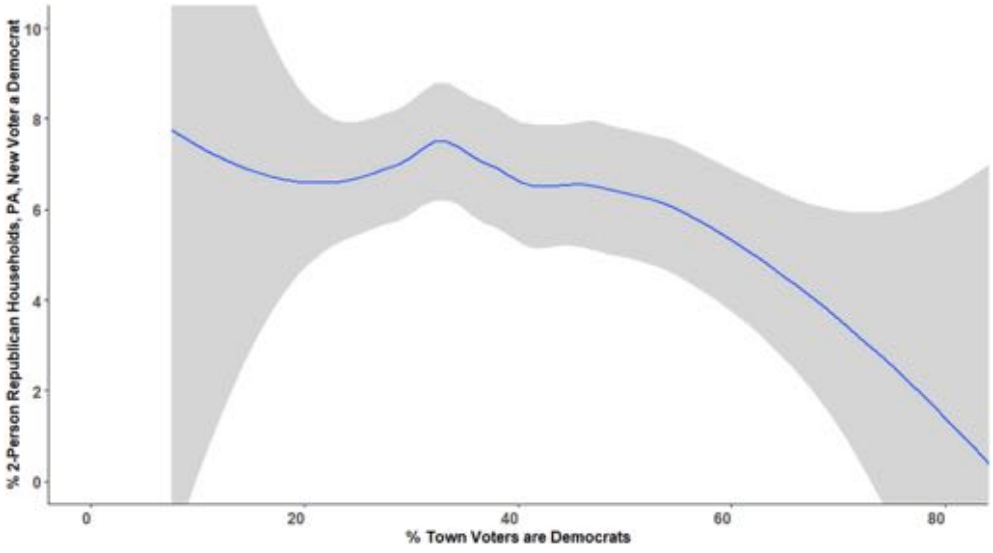


**Fig. 8.** Loess smoothing of percent of Pennsylvania households in which 2 household members are not Democrats with one of these registered to vote before 2010 and 1 household member registered as a Democrat in 2018 as a function of the household's municipality's percent of the registered voters self-identified as Democrats. Standard error of the estimate is represented by the shading. Loess smoothing of percent of Pennsylvania voters in 3-person households at T1 who change party affiliation on moving to a new address as a function of birth year and whether they move to the new address with or without other members of their T1 households. Standard error of the estimate is represented by the shading.

## Effects of lowering the voting age in Tacoma Park

*Fig.* 10 depicts intra-household partisan homogeneity as a function of year of newest voter registration in Takoma Park and family size. To reiterate, one concern of opponents of lowering the voting age is that it will allow parents to have undue influence on their children's political affiliations. Here we examine the extent of within household partisan homogeneity to assess whether lowering the voting age increased the

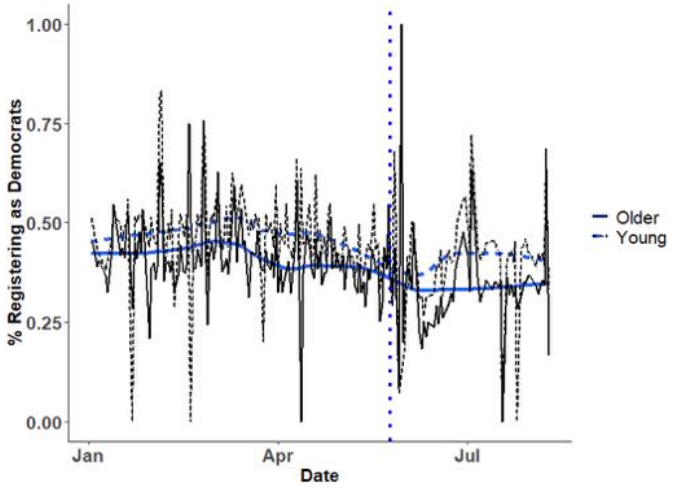


**Fig. 9.** Loess smoothing of percent of those registering to vote as Democrats in Pennsylvania in 2020. The dotted vertical line corresponds to May 25, the date of George Floyd's murder which was the source for widespread protests across the country.

likelihood that young voters adopted the affiliations of their parents.

The year-to-year trends depicted in Fig. 10 fluctuate, perhaps because the population is relatively small and in years in which there are no federal elections the number of new voter registrations was modest; together, the consequence was fluctuating rates. Nonetheless, the trends for two- and three-person households seem generally stable across the decade, while the trend for four-person households is clearly upwards.

It is possible to test for deflections in time series using a variety of statistical procedures. Here, we used a test developed by Brodersen, Gallusser, Koehler, Remy, and Scott (2015) to implement a Bayesian structural time-series analysis. The goal of the analysis is to estimate the causal impact of an intervention—in this instance, lowering the voting age–on a time series. The program takes as inputs the period preceding the intervention and the period following it. The portion of the time series preceding the intervention is used to estimate the synthetic control for the time series that is estimated to have occurred in the absence of the intervention. The estimate of the synthetic control is improved by including one or more control time series that are unaffected by the intervention. In the analyses that follow, we include two control time series. First, we used the time series for two-, three-, and four-person households in Maryland (Fig. 2), excluding data from Takoma Park, as one control time series, reasoning that other municipalities in Maryland were unaffected by the change in voting age in Takoma Park. A second control time series was constructed using data for households from Pennsylvania (Fig. 3).

The choice of time periods can be important in the estimate of the effect of the intervention; if the pre- and post-intervention time periods are too long or too brief, the estimation of the synthetic control becomes imprecise. This is because a long period may contain a sequence of time series each with a slightly different form from the time series in which the intervention takes place. To test the sensitivity of the results reported here, we test a set of dates in addition to those corresponding most closely to the hypothesis.

We used the time period from 2000 to 2012 as the time span preceding the intervention (the law was changed in 2013) and the time period from 2015 to 2018 as the post-intervention period (this allows the effects of the legislation to be evident in registrations for state and federal elections). To assess the robustness of the findings, we also tested the spans 2000–2013 (as the preceding time span) and 2014–2018 (as a post intervention period).

The analysis allowed an estimation of the effect of the intervention, which is defined as the average of the differences between the observed data points and those in the synthetic control. This effect can be communicated as an average percentage increase or decrease in a variable over the post-intervention period compared to what would have been expected in the absence of the intervention. Confidence intervals can be generated around this estimate, linking this analysis to frequentist data analysis.

The statistical tests do not suggest a clear pattern. First, the deflection test in 2-person households was not significant, suggesting that changing the voting age had no discernable effect on partisan homogeneity in 2-person households.

In 3-person households, there was a small but significant effect of lowering the voting age ($p < 0.05$). However, the effect was in the *opposite* direction from what was predicted. Rather than increasing partisan homogeneity, lowering the voting age appeared to decrease homogeneity. The robustness tests showed a similar pattern of results. There were not enough 4-person households with new voters to conduct the time-series analysis.

## Discussion

The goal of this research was to explore developmental plasticity in partisan identifications as a foundation for considering the impact of lowering the voting age on the political affiliations of 16- and 17-year-olds. To do so, we analyzed partisan identifications in voter registration records in two states, Maryland and Pennsylvania. Voter registrations as a source of data have noteworthy limitations: by definition, they only include those sufficiently motivated to fill out the forms necessary to vote, excluding many individuals. Moreover, most of our analyses were conducted on young people 18 years old and older, because the voter

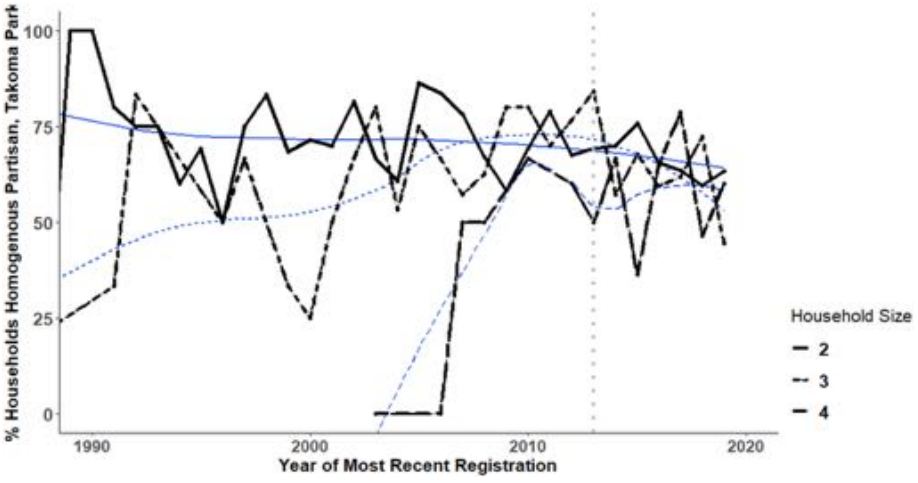


**Fig. 10.** Within-household partisan homogeneity as a function of year of most recent voter registration within Takoma Park Maryland. The black lines track the year-by-year data with blue lines smoothing the year-to-year numbers. The dotted gray line corresponds to the year of passage of legislation lowering the voting age to 16 for municipal elections. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

registration process largely excludes those at younger ages. Finally, partisan identifications in voter registrations are declarations of membership (e.g., “Democrat”, “Republican”) and do not allow for distinctions in the degree of attachment to a political party. It is likely, for example, that many people who do not self-identify as Democrat or Republican—registering as Independents—actually share beliefs and actions characteristic of one of these two parties, but are simply reluctant to announce publicly their affiliations (Petrocik, 2009). Offered a graded scale, rather than the nominal one characteristic of voter registrations, might allow many self-identified independent voters' ideological preferences to be captured.

However, voter registrations are an important source of information. First of all, they allow for the examination of entire populations of individuals eligible to vote (in this paper, the eligible populations of Pennsylvania and Maryland). These large numbers allow for analyses (for example, change of party affiliation accompanying change of residence) that would not be possible with the smaller samples typical of survey research.

More importantly, however, the public declarations of political affiliation in the voter registration process signals to others one's political identity and organizes one's own political cognitions, values, and actions (Gerber et al., 2010). Membership in a political party is not a perfect predictor—Democrats do vote for Republicans on occasion, for example—but partisan self-identifications in voter registrations are important.

Our analyses generally suggest that partisan identifications are stable, and only subtly affected by discrete relationship changes, the partisan composition the municipalities in which one is resident, and powerful historical events.

In both Maryland and Pennsylvania, it is clear that there is considerably more within-family homogeneity in partisan identification than would be expected by chance. The source of this homogeneity cannot be identified with voter registration data. As we noted in the introduction the homogeneity could be due to genetic factors or most likely some combination of the two. In one analysis, we looked at the likelihood that registered voters would change political affiliation when they left their homes and families behind and moved to a new residence. Our analysis suggested that moving to a new address without one's family was associated with an increased likelihood of changing political affiliations, but that this association was not moderated by age. Most importantly, young voters separated from their parents physically were no more likely to change political affiliations than middle-aged voters moving away from their families. This latter finding is consonant with the claim that parental social influence has modest effects on political party affiliations, a perspective with strong roots in the behavioral genetic research (Hufer et al., 2019). As we noted earlier, similarity in partisan identification among spouses does not increase as a function of the length of a marriage (Iyengar et al., 2018), suggesting that partisan identification is relatively insensitive to dyadic social influence.

We also examined the extent to which the adoption of political affiliations is sensitive to the partisan composition of communities. We reasoned that young persons preparing to register and declare a political identity in a municipality that is largely Republican might be more likely to see themselves as Republican than the same young persons living in communities that have mostly registered Democrats. Somewhat surprisingly, children of two Republicans were no more likely to register as Democrats in municipalities in which most voters are Democrats than in towns in which most voters are Republican. This analysis suggested that young people are little affected by partisan composition of communities in their selection of partisan identifications. The finding that this body of new voters is not substantially affected by the partisanship of their communities suggests that community effects on ideological political affiliations may be quite modest in magnitude (see also Billings et al., 2020).

Finally, we assessed the effects of two substantial events in recent American history—the pandemic and widespread protests—on political affiliation. The Republican President was blamed by the American public for both events, yet in our analyses these events did not seem to change dramatically the number of new voters registering for the Republican party nor the patterns of partisan change among those who were already registered. The lack of change may be in part a consequence of the high threshold for change—an individual must complete official forms to change parties—but the pattern is consistent with our other findings indicating that partisan identifications are stable and resistant to single influences.

With the stability of partisan identifications for people of all ages established by our analyses, and the lack of evidence that discrete social or historical events shift partisan identifications dramatically, we examined the potentiating effects of lowering the voting age on family influences. We assessed within household partisan homogeneity using voter records, reasoning that if lowering the voting age potentiated family influence on partisan identification, then there ought to be a noticeable increase in intra-household partisan identification following the passage of legislation lowering the voting age. We calculated the time series for intra-household homogeneity of partisan identification for Takoma Park, Maryland, the only community in the United States with enough data before and after enabling legislation lowering the voting age to permit this kind of analysis, and found little evidence for an effect of lowering the voting age.

Because Takoma Park sought to become the first municipality to lower the voting age, it is safe to imagine that the city values the judgment of young people, perhaps making it unrepresentative for assessing the likely effects of lowering the voting age across an entire state. Moreover, the small number of voters contributed to difficulties in estimating statistical models, making the findings of inferential tests suggestive rather than definitive. Finally, longitudinal research following individual citizens might be more sensitive to the effects of an intervention, but these kinds of data are not currently available.

What the research here does suggest is that intra-household partisan homogeneity does not seem affected by lowering the voting age in the one community in the U.S. with a history of letting 16- and 17-year-olds vote in municipal elections. This finding may be useful in public discussions concerning lowering the voting age, as a common fear is that enfranchising younger voters will heighten the influence of parents (Wray-Lake, Wilf, & Oosterhoff, 2019).

The findings reported in this paper are relevant for a discussion of lowering the voting age for another reason. Figs. 2–5 suggest that although partisan intra-household homogeneity is high, it is not perfect. This means that when voters cast partisan ballots, they do so as imperfect representatives of family preferences. In turn this means that members of the family who do not vote likely have policy preferences that are not translated into votes by family members who do vote. If 16- and 17-year-olds can vote rationally as the evidence suggests (see Hart & Atkins, 2011; Hart & Youniss, 2018), then members of this age cohort could express their policy preferences more precisely by voting themselves than relying on the imperfect representation offered in the votes cast by family members.

While there is a genuine need for additional research, the evidentiary base to date (Hart & Youniss, 2018, for a review) complemented by the findings reported here support the argument that extending the right to vote to 16- and 17-year-olds has no discernable distinctive effects on ideological orientation. The results reported here and elsewhere (Hart & Youniss, 2018) suggest that 16- and 17-year-olds are fully able to exercise the right to vote responsibly. Surely a just, democratic society should invite the participation of those who deserve it.

## Authors statement

All authors (Hart, Atkins, Allred) have seen and approved the final version. We declare no conflicts of interest.

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