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Youth Nonvoting: Age, Class, or Institutional Constraints?

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While age is invariably used in the analyses of voter turnout, much less attention has been dedicated to explaining why age matters, and in particular why young adults have such low turnout rates. In addition, previous research overwhelmingly employs cross-sectional data that cannot effectively address issues of selection bias when estimating parameters. In the present study, we deploy data from the High School and Beyond Survey (1984 and 1986 waves) to analyze youth voting patterns. Utilizing fixed effects logistic regression models we show that, when the same individual is compared at two points in time, the strongest effect on both registration and voting appears to be due to the aging and maturing process. Also, being married and having children decreases likelihood of registration while being in school decreases the likelihood of voting conditional on registration. Since experimental evidence has shown that casting a ballot increases individuals' propensity of voting in the future, these results with respect to young adults have implications for voter participation in the population as a whole.

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INTRODUCTION

While voting is one of the hallmarks of democracy and one of the easiest acts of political participation, a substantial proportion of Americans do not come to the polls. Voter turnout rates in the U.S. lag far behind those of other democratic nations (e.g. Burnham 1987; Piven and Cloward 1988; Teixeira 1992; Wolfinger and Rosenstone 1980). Furthermore, since the 1960s, already low voter turnout has been declining almost steadily. By the 2000 presidential election, only 54.7 percent of voting age population came to the polls (US Bureau of the Census 2002). The turnout is even lower during off-year congressional elections: for example, merely 41.9 percent of voting age population voted in the 1998 elections (US Bureau of the Census 2000). These percentages are only slightly higher if calculations are restricted to US citizens as opposed to the voting age population as a whole (US Bureau of the Census 2002, 2000).

Low and declining patterns of voter participation are even more pronounced among young adults – who have the lowest engagement of all age groups. While some voting campaigns such as Youth Vote (Green and Gerber 2001) and Rock the Vote (Burgess et al. 2000) have been shown to be successful in encouraging young people to vote, only 32.3 percent of individuals aged 18 to 24 voted in the 2000 presidential elections, and only 16.7 percent voted in the 1998 congressional elections (US

Bureau of the Census 2002, 2000). While age is included as a variable in most analyses of voter turnout, not much research has systematically examined the uniquely low voter turnout of young adults. This omission is troubling not only because low turnout of young adults leads to under-representation of issues relevant to them in politics, but also because experimental evidence shows that casting a ballot increases individuals' propensity of voting in the future (Green and Shachar 2000). Instilling voting habits in young adults would likely increase their voting turnout over the lifespan and therefore increase voting rates overall. Furthermore, existing research on young adults usually places all young adults into one category without explaining observed variation between those who do and do not vote and/or does not account for unobserved heterogeneity among young adults.

Utilizing logistic regression models and fixed effects models, which account for selection bias by comparing the same individual at two points in time, we examine both registration and voting patterns of young adults. While we focus on young adults, our methodology and findings could be useful for exploring voting patterns in general. Also, understanding low turnout of young adults can help predict future trends and potential ways for increasing their political engagement.

EXPLAINING LOW VOTER
TURNOUT

Voter turnout in the US is low by international standards, and it has been

declining almost steadily since the 1960s. The decline in turnout since the 1960s has been referred to as “the puzzle of participation” (Brody 1978) as it occurred during a time of certain demographic and political changes (such as increasing levels of education and slackening registration requirements), which would be expected to *increase* turnout. Furthermore, the turnout in the US is not only low but uniquely skewed such that “The most underrepresented American include those who are disadvantaged in other ways as well: the poor, the uneducated, and racial minorities” (Wolfinger and Rosenstone 1980: 108). While the turnout decreased for all demographic groups since the 1960s, it decreased somewhat more for the groups that were least likely to vote in the first place, such as the lower educated, the poor, and the young (Teixeira 1987, 1992).

Researchers have advanced a number of demographic and systemic variables that could account for the low overall turnout and the decline since the 1960s. Most of this research follows Anthony Downs’ (1957) conceptualization of voting as a rational decision-making process: when benefits, either instrumental or expressive, outweigh the costs of voting (e.g., registration, learning about candidates, going to the polls), individuals are more likely to vote. This logic helps to explain the higher voting rates of more highly educated individuals (who have lower marginal costs of political information) and the negative impact of strict registration laws (which increase the time costs of voting). Yet, as the following discussion will show, this cost-benefit analysis obscures as much

as it illuminates as a number of recent findings challenge the predicted patterns.

PERSONAL CHARACTERISTICS INFLUENCING VOTING TURNOUT

SOCIECONOMIC STATUS. A substantial body of literature examines the role of socioeconomic status in voter turnout. This research reveals that individuals of higher SES, regardless whether it is measured in terms of education, income, or occupation, are more likely to vote, with education being the strongest predictor of turnout (e.g., Burnham 1987; Cunningham 1991; Leighley and Nagler 1992a; Nichols and Beck 1995; Piven and Cloward 1989; Wolfinger and Rosenstone 1980). In 2000, only 38 percent of voting-age citizens who did not finish high school voted while over 3/4 of those with college degrees exercised the privilege (US Bureau of the Census 2002). Wolfinger and Rosenstone (1980) proposed that education has a strong effect on turnout because education increases the benefits and decreases the costs of voting: education increases cognitive skills, thus increasing individual’s capacity to understand complex and abstract matters such as politics; education helps individuals learn to navigate bureaucratic systems; and higher educated individuals are likely to get more gratification from political participation. However, other authors have suggested that the effect of education is largely indirect, manifested through higher civic participation (Olsen 1972) and increased political interest of the higher educated (Brady, Verba, and Scholzman 1995).

While there is an SES gradient in voting, which is uniquely American (Burnham 1987; Powell 1986), whether

this gap has increased over the last couple of decades remains an unresolved debate. Burnham (1987) suggested that the class bias in turnout (class measured in terms of occupation) increased because the decline in turnout since the 1960s was the greatest among the working class: “the attrition rate among various working-class categories [was] more than three times as high as in the professional and technical category (p. 125).” However, Leighley and Nagler (1992b) argued that income is the appropriate measure of class and that class skew based on this measure has not increased. Examining all three components of SES, Teixeira (1987, 1992) found mixed results: turnout rates decreased more for the less educated, but the results for income and occupation did not show any consistent patterns. On the whole, he concluded that the weight of the evidence suggests perpetuation of the already existing patterns and only an insignificant widening of the class gap between 1960s and 1980s.

In addition to participation, researchers have examined the alignment of classes with political parties (for review see Manza and Brooks 1995). While early studies suggested a decrease in the influence of class on party choice, more recent studies indicated either trendless fluctuation or realignment. For example, Hout, Brooks, and Manza (1995) showed that the affinity between blue-collar classes for left-leaning parties and the affinity of white-collar classes for right-leaning parties has undergone realignment, seemingly decreasing the importance of class. But, considering all sources of association between class and political preferences and behavior, including the non-voting, they showed that class location still has

an important impact on voting behavior in the US (*ibid*, see also Manza and Brooks 1999).

AGE. Next to SES, age is perhaps the second most important individual predictor of voter behavior (Wolfinger and Rosenstone 1980). It is well established that age has a positive curvilinear relationship to voter turnout: the turnout is lowest among young adults, it increases over the life span, and then decreases slightly among the elderly (e.g., Filer, Kenny, and Morton 1993; Glenn and Grimes 1968; Nagler 1991; Olsen 1972; Nichols and Beck 1995; Strate et al. 1989; Wolfinger and Rosenstone 1980). In 2000 presidential elections, 36.1 percent of young citizens aged 18 to 24 voted. The turnout increased across age brackets reaching the high of 72.2 percent for the 65-74 year-olds, and then decreased slightly to 66.5 percent for citizens over 75. Overall, the age gap in voting has increased over time with the rates for the youngest voters declining faster than those for the older voters (US Bureau of the Census 2002). In light of these trends, Shaffer (1981) and Boyd (1981) have suggested that the changing age distribution of the electorate since the 1960s is largely responsible for the declining turnout. However, more recently, Teixeira (1992) and Rosenstone and Hansen (1993) showed that while the age of the electorate has contributed to the decline in voting, it was not the main or even a very influential factor (it accounted for only about 3 percent of the decline).

Miller and Shanks (1996) suggested that looking at age is deceiving as it masks cohort effects. They proposed that the decline in voter turnout since the 1960s was due to

cohort replacement: habitual voters of the pre-New Deal generation were being replaced by the new non-voting post-New Deal cohorts. However, most of the cohorts experienced a decline in voting participation since the 1960s. From 1964 to 2000, voting participation of 18-24 year-olds decreased by 18.6 percent, 25-44 year-olds by 19.2 percent, and 45-64 year-olds by 11.8 percent (US Bureau of the Census 2002). While the voting participation of those over 65 increased slightly (1.3 percent)(US Bureau of the Census 2002), this increase is lower than what would be expected due to the aging processes, suggesting that the older cohorts are also contributing to the decline (Teixeira 1992). Therefore, although younger cohorts have a depressing effect on overall participation rates, there is also something unique about age that leads to increasing turnout over individual's lifespan.

The effects of age are also hard to isolate because age is related to other factors that influence turnout such as education, income, marital status, and mobility. For example, some authors have proposed that the decline in the turnout among the elderly is not due to age *per se* but due to differences in education, marital status, and sex composition (Nichols and Beck 1995; Wolfinger and Rosenstone 1980). Furthermore, the effects of age vary depending on other variables, such as SES. Voting among those with the highest levels of education does not increase over the lifespan while lower SES individuals make substantial gains over time (Strate et al. 1989; Wolfinger and Rosenstone 1980). Even after a number of demographic variables are

controlled for, however, age remains a significant predictor of turnout.

RACE AND GENDER. Voting rates for race and gender groups have converged over the last couple of decades. Minorities vote less often than whites (Burnham 1987), although the effect is relatively small (Wolfinger and Rosenstone 1980) and declining (Abramson, Aldrich, and Rohde 1998; Nichols and Beck 1995), especially in the south (Teixeira 1987, 1992). In 2000 presidential elections, 57.5 percent of whites voted, and a slightly smaller percentage (53.1 percent) of blacks voted (US Bureau of the Census 2002). Furthermore, when uneven distribution of resources among the races is accounted for, minorities participate as much as whites (Verba et al. 1993). In 1984 election, blacks actually voted more than whites of the same SES background (Leighley and Nagler 1992a). Although, a cautionary note is needed with these statistics as blacks over-report voting more than whites (Abramson and Claggett 1984). In addition to being affected by uneven distribution of resources, an emerging line of research shows that minority population is disproportionately affected by felon disenfranchisement laws which further limit their voting potential (e.g., Manza, Uggen, and Britton 2001).

Women had lower turnout than men until the 1980s, when they began voting slightly more than men of the same SES background (Leighley and Nagler 1992a; Manza and Brooks 1998; Nichols and Beck 1995). The steady convergence of women's and men's turnout from 1952 to 1988 was arguably due to cohort replacement: the gender gap in voting is unique to cohorts of women who came of age before the

passage of Nineteenth Amendment giving women the right to vote have been less likely to vote in all elections (Firebaugh and Chen 1995). As these older cohorts of women become a smaller percentage of the total population, female voting rates have caught up with and even passed male ones. For example, by 2000, 56.2 percent of women voted while 53.1 percent of men did so (US Bureau of the Census 2002).

OTHER PERSONAL CHARACTERISTICS. Teixeira's (1987, 1992) detailed analysis of the decline in the voting turnout from 1960 to 1984 suggested that above noted individual factors did not explain the decline. Changes in education, occupation, and income during that time functioned to increase turnout while changes in age distribution, mobility, and marital status decreased turnout. Americans became "more middle class and less socially rooted;" thus these factors acted to cancel each other out and turnout should not have dramatically decreased. Teixeira (1987, 1992) proposed that the decline was due to the "problem of voter motivation." Over time, individuals became less engaged in politics (measured by decline in partisanship, political efficacy, and campaign newspaper reading), and consequently, less likely to vote. Other studies indirectly supported this argument by showing that political interest has the most substantial effect on voting (Brady, Verba, and Scholzman 1995) and that the sense of political efficacy increases political participation (e.g. Abramson and Aldrich 1982; Shafer 1981).

Advancing a somewhat different perspective, Putnam (1995) argued that decline in voting is part of the larger

trend of decrease in civic participation: as individuals who are members of voluntary associations are more likely to vote, recent decline in civic participation had a negative effect on voting. Other studies corroborated this argument showing that civic participation had a positive effect on voting even after controlling for a range of individual level variables, from age and education, to political interest and party identification (Olsen 1972). Furthermore, Glanville (1999) found that extracurricular engagement in high school influenced subsequent political engagement, net of political attitudes and personality traits.

Lastly, while Wolfinger and Rosenstone (1980) suggested that individuals' free time does not affect voter turnout, Brady, Verba, and Scholzman (1995) suggested that free time is an important resource influencing turnout. This contradiction may be largely due to their examination of different timeframes. In 1980, 7.6 percent of registered individuals reported that they did not vote due to lack of time, but three times as many individuals (21.5 percent) reported so in 1996 (US Bureau of the Census 1998). Unfortunately, neither of the studies explored the effects of free time on individuals' likelihood of registration.

SYSTEMIC VARIABLES INFLUENCING VOTER TURNOUT

While above discussed demographic variables are associated with voter turnout, they do not adequately explain why turnout in the US is so low compared to other industrialized countries or why it has declined precipitously since the 19th century and especially since the 1960s

(Avey 1989; Piven and Cloward 1988). In 1980s, the average turnout of western democratic countries ranged from 94 percent in Belgium to 49 percent in Switzerland. The US had the second lowest turnout of 53 percent (Teixeira 1992). Also, in many other industrialized countries, voter turnout is not related to socioeconomic status (Avey 1989). Consequently, more recently, scholars have turned to examining “the rules of the game” (Burnham 1987), namely registration laws and the organization of US electoral politics, as factors influencing voter turnout.

Piven and Cloward (1988) offered a detailed analysis of the changes in the electoral system in the 20th century and suggested that individuals in the US do not vote because the political system tends to isolate them, though both registration laws and political party arrangements. A number of other authors have pointed to registration laws as one of the main culprits for low voting turnout and the socioeconomic gap in voting (e.g. Cunningham 1991; Powell 1986; Rosenstone and Wolfinger 1978; Wolfinger and Rosenstone 1980). While governments of many other industrialized countries take on the responsibility for registering voters, in the US registration is a burden placed on the individual. Different costs of voting, such as residency requirements, literacy tests, and poll taxes are inversely related to voting (Filer et al. 1993). Indeed, once individuals are registered, they are very likely to vote, which is as true for the less educated as for the highly educated (Erikson, 1981; Squire, Wolfinger, and Glass 1987). For example, in 1980s, over 80 percent of registrants went to the polls and the

turnout was basically equal for individuals of high and low SES (Piven and Cloward 1988).

While registration laws surface as the linchpin of low and skewed voter turnout, political structures through which votes are mobilized and translated into political power also influence turnout. Party competition, organization of parties, divided government, and the rise of the “permanent campaign” all combine to decrease voter turnout and increase the gap between higher and lower classes (Burnham 1987; Franklin and Hirczy 1998; Piven and Cloward 1988). Low levels of political mobilization (e.g., partisan mobilization, electoral competition, social movement activity) in the US appear to be one of the central factors depressing voter participation and fostering the socioeconomic gap in turnout (Avey 1989; Patterson and Caldeira 1983). Rosenstone and Hansen (1993) suggested that decline in political mobilization since the 1960s explains up to 50 percent of decline in voter turnout.

Although these systemic factors broaden the understanding of the electoral process in the US, they do not solve the puzzle of participation. The argument that registration laws are central to low turnout and SES gap in voting has been disputed in recent analyses. Nagler (1991) re-examined Wolfinger and Rosenstone’s (1980) analysis and suggested that their findings of importance of registration laws resulted from model misspecification. He showed that restrictive registration laws do not have any more impact on lower educated individuals than on the higher educated ones. Higton (1997) also challenged the registration laws argument by showing that states that

allow registration on election day or require no registration at all have a somewhat lower but still a substantial class gap in voting. In addition, the argument for registration laws goes contrary to the recent trends: in the later half of the 20th century, registration has gotten easier and less time consuming, while at the same time the rates of voting have declined. “Motor Voter Bill”, which took effect in January 1995 and required states to offer more forms of registration (such as simultaneous application with driver’s license, registration by mail, and registration in public agencies, including those offering public assistance and services to disabled), lead to registration of additional 9 million people (close to 20 percent of the unregistered) in two years. But this surge in registration has not yet translated into higher turnout: voter turnout in 1996 was the lowest since 1924, and turnout in 1998 congressional elections was not much better (Keyssar 2000). Between 1996 and 2000 presidential elections, the voting participation increased by a negligible ½ percent (US Bureau of the Census 2002).

There has been less rigorous testing of the effects of the electoral system on voter turnout, but at least one study showed that individual variables have a strong influence on voter turnout, even after controlling for systemic factors such as closing registration day, party competition, and state education and income level. The effect of these systemic factors appeared to be at best marginal (Leighley and Nagler 1992a). Thus, on the whole, while systemic factors may be illuminating in cross-national comparisons, personal factors appear to be central determinants of voter participation within the US.

EXPLAINING YOUNG ADULTS VOTING PATTERNS

While age is invariably used in the analyses of voter turnout, much less attention has been dedicated to explaining why age matters, and in particular why young adults have such low turnout rates. Explaining why age matters is complicated, as age is related to other factors that affect turnout, such as geographic mobility, marriage, education, and income, all of which would be expected to decrease turnout. However, even if these confounding factors are controlled for, young adults are still less likely to come to the polls.

The overarching argument surfacing from the previous literature is that young adults are less likely to vote because they are less socially integrated (e.g. Converse and Niemi 1971; Teixeira 1992), or in Nichols and Beck’s (1995) terms lack the “social and political roots associated with turnout.” For example, geographic mobility, which is greater among the young (e.g. Conway 2000; Highton 2000; Squire et al. 1987) is negatively associated with turnout and marriage, less common among youth, is positively associated with voting rates (e.g. Nichols and Beck 1995; Timpone 1998). It follows that as young adults become more connected to their communities and adopt adult-roles, such as get jobs and marry, their participation rates would increase (Abramson, Aldrich, and Rohde 1998).

In addition, young adults appear to be less politically interested and less civically competent. Glenn and Grimes (1968) argued that young adults have low turnout because of their low political interest, which is largely due to existence of multiple demands upon

their time and energy which distract them from politics. Similarly, Strate et al. (1989) proposed that young adults have a lower sense of civic competence (defined in terms of attentiveness to politics, contextual knowledge about politics, and habits of monitoring politics), and thus vote less. Many personal characteristics, such as civic competence, community attachment, church attendance, party attachment, and government responsiveness, increase as individuals age and thus increase turnout over individuals' lifespan. Young adults, who lack these characteristics, vote less. Thus, overall conclusion is that young adults do not vote because they lack the resources (skills, knowledge, and attachments) that are associated with turnout (Rosenstone and Hansen 1993).

While above articulated arguments suggest that young adults have less of the characteristics that encourage voting and therefore have lower turnout, many of them are based on speculations and not rigorous comparisons of older and younger individuals. They also do not reveal why some young adults vote while others do not and whether personal characteristics described earlier have different effects on young adults than on the population as a whole. There are couple of notable exceptions. Wolfinger and Rosenstone (1980) showed that while marriage overall increases voter turnout, the effect of marriage is weakest among young adults. Furthermore, they found that those young adults who are in school are more likely to vote than those who are employed, largely because those who are in school have free access to political information and lower registration and voting costs.

Corroborating these findings in a multivariate model, Highton and Wolfinger (2001) showed that acquiring adult roles, such as leaving school and getting married, actually had a negative effect on turnout of young adults. Lastly, focusing on low and declining turnout of non-college educated whites, Bennett (1991) suggested that they vote less because of their increasingly socioeconomic marginality, weakened partisanship, increasing political indifference, and declining belief that public officials are responsive to public opinion, concluding that "Their tendency to eschew voting stems largely from the fact that they have been left behind in America (p. 315)."

THE PRESENT STUDY

In the present study, we focus on exploring the factors that influence both registration and voter turnout of young adults. While these two processes are often confounded, they are differentially influenced by individual and systemic factors, requiring separate analyses (Timpone 1998). A focused examination of the political participation of young adults can be beneficial for several reasons. Whereas comparing young adults to older individuals is useful, it is limited in its ability to disentangle the effects of age from a myriad of other factors that change together with age (such as marriage, education, income, political attitudes, and so on). Furthermore, comparing young adults to older individuals cannot explain differences among young adults and reveal what is unique about the small percentage of young adults who do vote. Also, it is important to understand the impact of already discussed factors (such as SES, gender, marriage, civic

participation, and so on) specifically on voting propensities of young adults. If voting is a habit (Green and Shachar 2000), a more comprehensive understanding of the political participation of young adults could help predict future patterns of turnout and advance possible ways through which the turnout could be increased.

In addition, previous research on voting in general and young adults in particular has been susceptible to selection bias. Incorporation of a range of control variables does not guarantee that the results are not due to some unobserved difference among individuals (Green and Shachar 2000). Thus, we utilize both standard logistic regression models and fixed effects models, which compare the same individual at two different points in time, eliminating the effects of selection bias. This methodology allows us to estimate “truer” effects of life-course and institutional factors. In other words, when we estimate the effect of being married or attending school on registration rates and voting using a fixed-effects or first-difference model, we are factoring out the propensities of those who are likely to be married or in school to vote anyway from the effects of actually participating in the institutions of family and school. This represents a step forward from previous research that has not adequately accounted for the unobserved characteristics of individuals that lead to say, higher education levels and higher marriage rates, on the one hand, and higher voting rates on the other. We explain the rationale and assumptions that undergird our research strategy in the methodological section below.

DATA AND METHODS

Most studies of civic participation are limited in their ability to disentangle selection bias issues because they are based on cross-sectional surveys of the potential voting population – such as the National Election Surveys (NES) and Current Population Survey (CPS). Instead, we utilize panel data from the High School and Beyond Survey (HSB), a nationally representative survey of high school sophomores and seniors originally interviewed in 1980. HSB offers detailed information on students’ socioeconomic background, school-activities, and post-high school education and employment. We use the data from the second and third follow-ups (1984 and 1986) of the senior cohort. Our sample includes over 10,000 students interviewed four and six years after high school graduation, thus approximately 22 to 24 years of age. For logistic regressions, we report only results for 1986 as the results for 1984 are nearly identical and thus repetitive.

METHODS

The panel structure of this study allows us to estimate the effects of changing conditions on registration and voting rates of individuals. The presenting problem with traditional estimates of the effects of demographic or institutional factors on voting (of youth or of any group) is that it may be the case that even with control variables, the association between say, education, on the one hand, and propensity to vote on the other may be spurious, reflecting some underlying third characteristic (such as intelligence) that affects both

voting and educational attainment. Individual-fixed effects (or first difference models) are an effective strategy for factoring out such unobserved heterogeneity to the extent that it is constant over time. This fixed effects approach has become increasingly popular in sociology as of late as a way to address the problem of unobserved heterogeneity. Even though several researchers have used this approach, it differs significantly enough from traditional logistic regression approaches to merit some elaboration here (for other examples, see, e.g., Currie and Thomas 1995; Duncan, Yeung, Brooks-Gunn and Smith 1998; Conley and Bennett 2000; for a much more elaborated mathematical discussion of the merits and drawbacks of this methodology, see Griliches 1979). The traditional logistic regression formulation is shown in equation (1) below:

$$\log (\mathbf{P} / (\mathbf{1}-\mathbf{P})) = \boldsymbol{\alpha} + \mathbf{X} \boldsymbol{\beta} \quad (1)$$

where \mathbf{X} represents the matrix of variables and observations specified in the model, and $\boldsymbol{\beta}$, its associated vector of coefficients. However, in the case of socio-demographic factors and youth voting rates, for example, we can be fairly certain there are lurking variables; that is, that there is another vector of unobserved characteristics that is biasing our estimates of $\boldsymbol{\beta}$, such as an individual's competency at navigating bureaucratic structures and political information, his/her overall level of civic engagement, his/her family's culture and tradition of voting, even community level factors that may increase or decrease the likelihood of registering to vote and voting. Equation 2 makes this

set of variables explicit as the matrix of variables and observations, \mathbf{IND} , along with its corresponding vector of coefficients, $\boldsymbol{\delta}$.

$$\log (\mathbf{P} / (\mathbf{1}-\mathbf{P})) = \boldsymbol{\alpha} + \mathbf{X} \boldsymbol{\beta}_1 + \mathbf{IND} \boldsymbol{\delta} \quad (2)$$

When we have multi-year data, we can solve this problem, as shown in equation 3 below, by taking difference scores between our \mathbf{Y} variable at times t_1 and t_2 (say the likelihood of voting) and regressing that against the difference in \mathbf{X} variables at times t_1 and t_2 (say whether an individual is enrolled in school, is married, has children and so on). In this equation, the unobserved individual level characteristics that are assumed to remain constant drop out in modeling the difference:

$$\Delta \log (\mathbf{P} / (\mathbf{1}-\mathbf{P})) = \boldsymbol{\alpha} + \Delta \mathbf{X}_{t_1, t_2} \boldsymbol{\beta}_1 + \Delta \mathbf{IND}_{t_1, t_2} \boldsymbol{\delta} \quad (3)$$

However, we have not eliminated unobserved characteristics that are unique to the individual person-years or those that vary non-linearly over time. For example, we cannot eliminate bias in our models that may be due to the fact that there was particularly heated local election in one community in a given year and not during the subsequent election. These are year/person-specific, unobserved differences. To the extent that these differences are not randomly distributed – that is, they are correlated with our \mathbf{X} variables, $\boldsymbol{\beta}$ will be biased. However, the extent to which our \mathbf{X} variables are causally prior to these unobserved, country/year characteristics, their omission is not as troubling but merely suggests that part of the effects we report may work indirectly through

such mechanisms. For example, if being enrolled in school affects where an individual lives – that is, in a more or less politically engaged community – then any effect of school enrollment on voting rates may be acting through the mechanism of “university town” residence, for example.

Individuals who were not registered in either time period and respondents who were registered in both drop out of this portion of the analysis since they display no discordance on the outcome variable. Also, 3.85 percent of the 3,494 respondents not registered in 1984 reported voting, and 5.08 percent of 2,538 respondents not registered in 1986 reported voting. These observations are excluded from the analyses – they likely reflect the wording of the questions: the participants were asked whether they were currently registered and whether they voted within the two years preceding the survey. (Although, if they are included results do not change.)

We, thus, analyze responses for 1,172 respondents who were registered in one of the two time periods. Of those, 389 individuals (33.19%) were registered at t_1 but not at t_2 and 783 individuals (66.81%) were registered at t_2 but not at t_1 . (The reader should also note that independent variables that are constant across time periods, like race, gender and family background characteristics, also drop out of the models as they are de facto controlled.) Actual voting among the registered population displays a more balanced distribution. After dropping out of the individuals who show no change on the outcome variable, this analysis includes 1,034 individuals who voted in one of the two time periods, while being

eligible (registered) to vote in both. Of this group, 232 individuals (22.44%) voted in the first but not the second, leaving 802 individuals (77.56%) who voted in the second but not the first. This distribution is more slanted toward increased voting the second time around, but we are controlling for cohort.

VARIABLES

We assess two dependent variables: likelihood of being registered to vote, and likelihood of voting for those respondents who are registered. Both dependent variables were coded as dummy variables for each survey year.

In logistic regressions, we attempt to control for a range of individual-level variables that might otherwise generate bias in our estimates. We include dummies for female, black, Hispanic, other race, and rural and urban residence. We also control for respondents’ socioeconomic background by controlling for mother’s and father’s education (in years) and occupation (Socioeconomic Index of Occupations identified by Stevens and Cho 1985). Students’ academic ability and civic mindedness are controlled for by including variables for individuals’ test scores, high school grades, and participation in civic/volunteer organizations. Missing data for control variables were dealt with by using the mean substitution method: substituting means for the missing values and assigning dummy variables to the model (coded 1 when a substitution is made). There are other variables that may vary within countries and over time that we would have like to control for but were not able to given data limitations. Most

notably these include party affiliation, political attitudes and efficacy, and voter mobilization efforts.

Independent variables of interest include: educational attainment (in years), respondents' marital status ('1' for married and '0' for not), whether respondents have any children ('1' for yes and '0' for no), number of hours respondents are working, and whether respondents are enrolled in school at the time of the survey ('1' for yes and '0' for no). As logistic regression results were virtually identical for the two survey years, we report results for the 1986 follow-up. For descriptive statistics see Table 1.

[Table 1 about here]

In fixed effects models, we include five variables that could have changed between the two survey years: educational attainment, marital status, presence of children, hours working, and school enrollment. In the last model, we include a year variable (coded '0' for 1984 and '1' for 1986). One would expect that some changes occur between the two survey years due to the normal aging and maturing processes. By t_2 , respondents had higher likelihood of being married and having children and lower likelihood of being in school. Also, by t_2 , respondents had an opportunity to vote in the presidential elections, which was not the case in t_1 . This is likely to increase the likelihood of voting at t_2 as individuals are more likely to vote in presidential elections than in off-year congressional or state elections (e.g. Teixeira 1992). Thus, the year variable accounts for the "time effects" and allows estimation of the models net of the aging process and

particular circumstances of the survey years. For descriptive statistics see Table 2.

[Table 2 about here]

RESULTS AND DISCUSSION

CROSS-SECTIONAL LOGISTIC REGRESSIONS

The first model in Table 3 reports the logistic regression predicting individuals' likelihood of being registered to vote. Overall, the coefficients support previous findings. Individual socioeconomic background (especially parents' education) and ability are influential in predicting individuals' likelihood of registration. Net of background and ability, women and men are equally likely to be registered. African-Americans are more likely to be registered than Whites, while Hispanics are equally and other races less likely to do so. Also, civic participation in high school increases individuals' likelihood of registration in the subsequent years, confirming similar findings with regard to voting (e.g., Glanville 1999).

[Table 3 about here]

As Wolfinger and Rosenstone (1980) found with regard to voting patterns of young adults, being married decreases the likelihood of being registered, while being in school increases it. The presence of children and hours working do not seem relevant. Thus, the hypothesis that young adults increase their political participation as they acquire adult roles is not supported. Acquiring adult roles, such as being married and leaving school, actually

decrease individuals' likelihood of being registered to vote (see also Highton and Wolfinger 2001). Educational attainment is also significant, suggesting that even small increases in educational attainment enhance respondents' likelihood of registration, confirming previous finding of the centrality of education in predicting political behavior.

Model 2 presents identical logistic regression model for respondents' likelihood of voting (conditional on registration). The model reveals that after individuals are registered, the actual act of voting is not related to socioeconomic background, although it is still related to ability. This finding supports the argument that once registration hurdles are overcome, voting does not vary across class lines (e.g. Piven and Cloward 1988; Squire, Wolfinger, and Glass 1987). Furthermore, this lack of class gap in voting among young adults is particularly noteworthy as a number of authors has suggested that the class gap in voting is large among the young and then decreases over the lifespan (e.g. Strate et al. 1989; Wolfinger and Rosenstone 1980).

The effects of marriage and school enrollment for likelihood of voting are similar to those for the likelihood of registration: married young adults are marginally less likely to vote even when they are registered and those who are in school are more likely to vote. Lastly, educational attainment is not significant, indicating that once individuals are registered, coming to the polls is not related to educational attainment. Therefore, our analyses suggest that the act of registration does not eliminate the negative effects of

marriage or the positive effects of school enrollment, but it does neutralize the effects of socioeconomic background.

FIXED EFFECTS MODELS

The above-presented logistic regressions, which are frequently used in past research, replicate previous findings on voting in general and young adults in particular. However, even though we included a number of controls in the models, we cannot be sure that results are not produced by some unobserved difference between individuals (e.g., individual's sense of political efficacy, individual's political attitudes, the extent of individual's political knowledge).

Therefore, in Table 4, we present results for fixed effects models of respondents' likelihood of being registered to vote. These findings are notably different from those of the logistic regression. The first model shows that when the same individual is compared at two points in time, neither marital status nor being in school have a significant effect on the likelihood of registration. This finding indicates the possible presence of selection bias in the logistic regression models. There appear to be unobserved differences between individuals with different marital and school statuses, which are related to political participation. Once those differences are eliminated in the fixed effects models, the relationships reported in the logistic regression models are neutralized. The educational attainment has the expected positive effect on individuals' likelihood of registration.

[Table 4 about here]

The second model includes the year variable, accounting for “maturation effects” between two years. This variable is significant suggesting that changes over time associated with the maturing process are significant predictors of registration. This lends support to the previously advanced arguments that aging process in itself increases individuals’ involvement in political activities (e.g. Strate et al. 1989). Notably, in this model education level is only marginally significant, and both being married and having children have significant negative effects on being registered. As Figure 1 shows, being married decreases individual’s probability of voting by 5 percent while having children decreases it by almost 19 percent. The effects observed in the previous model (without the year variable) may be spurious, arising from the fact that those variables change as individuals age.

[Figure 1 about here]

As with the findings for registration patterns, fixed effects models predicting likelihood of voting counter some of the findings of the logistic regression. Model 3 shows that if individuals are registered, being married does not influence their likelihood of voting while being in school has a significant negative effect. Educational attainment is significant, suggesting that increased levels of education influence voting even net of registration. However, the effect of educational attainment is no longer significant when the year variable is added (Model 4). Notably, being in school remains negative and statistically significant. Hence, while being in

school does not influence the likelihood of registration, it has a negative effect on individuals’ likelihood of voting. Logistic regression results which show positive effects of being enrolled in school are likely due to some unobserved personal characteristics of individual who are in school that are related to voting such as future orientation or intelligence.

Concurring with the logistic regression analyses, the final fixed effects model shows that marriage has a marginally negative effect on individuals’ likelihood of voting (see also Stoker and Jennings 1995) while having children has no effect, conditional on registration. This is contrary to findings of Jennings (1979), although he does not control for registration status. Both being married and being in school decrease the probability of voting by approximately 5 percent (Figure 2).

[Figure 2 about here]

Thus, while traditional, cross-sectional logistic regression models replicate previous findings on political participation, fixed effects models, particularly the ones that include the year variable, challenge a number of those findings. When the same individual is compared at two points in time, the strongest effect on both registration and voting appears to be due to the aging and maturing process. Secondly, institutional factors (i.e., marriage, having a family with children, being in school) constrain individuals’ likelihood of registration and voting. Being married and having children decreases likelihood of registration and being married marginally decreases

individuals' likelihood of voting. Also, contrary to previous findings, being in school has no effect on registration and decreases the likelihood of voting conditional on registration. These models suggest the importance of employing methods that decrease or eliminate the effects of selection bias and urge caution in interpretation of findings that do not adequately control for the effects arising simply due to the passage of time.

CONCLUSION

We examine individual-level factors that influence registration and voting patterns of young adults using traditionally employed logistic regression models and fixed effects conditional logistic regression models. Our findings lend support to some previous findings and illuminate some shortcomings of past research. The present study brings forward the importance of using panel data. Although logistic regression models confirmed much of the findings in the previous literature, the fixed effects models challenged some of them. Logistic regression models can control for a range of factors that may affect voting and bias estimates, but they are not able to eliminate all individual-level differences. Thus, some of the previously reported findings likely result from an estimation bias because the models used cannot effectively control for the differences between individuals. For example, fixed effects models imply that the effect of school enrollment in logistic regression models arises from unobservable differences between individuals who differ in their patterns of school attendance, not from school

enrollment *per se*. Also, including the year variable in the fixed effects models accounts for the effects of aging on political participation. Those models indicate that aging process is important for individuals' likelihood of registration and voting and that studies which cannot effectively control for the aging process confound the effect of aging with the effects of variables that change over time.

Our results also suggest the usefulness of separating the effects of registration from those of voting. While many factors have the same effect on both processes, socioeconomic status and educational level have a substantial effect on the former but not the latter in logistic regression models. This lends support to the previous arguments proposing that registration is one of the key barriers to eliminating or at least decreasing the class gap in voting. Once individuals are registered, socioeconomic and educational factors do not influence their likelihood of voting. Also, fixed-effects analyses show that while being married and having children have significant negative effects on registration, they do not have a substantial effect on voting, conditional on registration.

In addition, our analysis illuminates the importance of correctly modeling the effects of education. As education is strongly correlated with individuals' political participation, one could argue that young adults have low turnout rates at least partly because they have relatively low levels of education. (However, education level increases across cohorts, which should increase the voting of young adults relative to the older cohorts.) Fixed effects analyses of these longitudinal data show, however,

that increasing educational levels does not have a significant effect on registration or voting net of the aging process.

The study is limited in its focus on political behavior of young adults in the 1980s, and a short timeframe between observations. Also, due to dataset characteristics, we are not able to separate differences between participation in different types of elections, such as presidential, congressional, or local. We can only estimate individuals' likelihood of voting in any form within the two years preceding the survey. As already noted, there is some noise in the data reflecting the wording of the voting and registration questions. And while the year variable is important in predicting registration and voting, we are not able to decipher what aging related processes it represents. The future research could more earnestly explore what changes in attitudes and behaviors occur over time that may lead individuals to come to the polls.

Fixed effects models can be criticized for their non-generalizability. With this in mind we compared the means for the sub-samples analyzed in the fixed effects models (Table 2) with the means of the full samples used in logistic regression models (Table 1). T-tests reveal no significant differences between the samples in the key independent variables. (Even the means for the variables omitted in Table 2, such as test scores, mother's and father's education and occupation, do not differ significantly across the fixed effects and logistic regression samples.) Thus, we can be relatively confident that our fixed effects models are based on a representative sample – though concerns

about inference can never be fully allayed.

Despite these limitations, the present study elucidates the importance of carefully considering the effects of various factors on political behavior. Unobserved individual differences and the aging process may bias previously reported estimates. Employing models that can disentangle the effects of key independent variables from those biases appears promising in better understanding registration and voting decisions of young adults and the population as a whole. And while a number of authors have suggested that increasing political participation would not necessarily change election results (e.g. Abramson, Aldrich, and Rohde 1998; Teixeira 1992; Wolfinger and Rosenstone 1980), many agree that low participation is a reflection of unhealthy democracy, and that it questions legitimacy of political leaders and creates skewed political agendas (e.g., Burham 1987; Keyssar 2000; Teixeira 1992). Instilling the habit of voting in young adults would be one way of increasing political participation of population as a whole. In order to do that, we need to gain a better understanding of the political engagement of young adults, and the present study is one step in that direction.

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Table 1. Means and Standard Deviations (in parentheses) for Logistic Regression Analyses,
Registration and Voting, 1986

Variable	Registration	Voting
Female	0.534 (0.499)	0.537 (0.499)
African-American	0.230 (0.421)	0.242 (0.429)
Hispanic	0.228 (0.420)	0.218 (0.413)
Other	0.052 (0.222)	0.044 (0.206)
Urban	0.270 (0.444)	0.270 (0.444)
Rural	0.273 (0.446)	0.265 (0.441)
Test	50.374 (8.598)	50.845 (8.647)
High school grades	81.446 (7.629)	81.811 (7.652)
Civic participation	0.202 (0.401)	0.229 (0.421)
Father's education	13.186 (2.411)	13.296 (2.451)
Mother's education	12.678 (2.004)	12.794 (2.046)
Father's occupation	38.576 (16.322)	39.135 (16.554)
Mother's occupation	40.828 (15.228)	41.337 (15.534)
Married	0.381 (0.486)	0.361 (0.480)
Child	0.173 (0.378)	0.164 (0.370)
Hours working	36.769 (12.554)	36.470 (12.699)
Enrolled in school	0.199 (0.399)	0.217 (0.412)
Educational attainment	13.033 (1.595)	13.155 (1.663)
N	8641	6475

Table 2. Means and Standard Deviations (in parentheses) for Fixed-Effects Analyses, Registration and Voting

Variable	Registration	Voting
	Mean	Mean
Married	0.361 (0.480)	0.338 (0.473)
[SD b/t group]	[0.413]	[0.408]
[SD w/in group]	[0.246]	[0.239]
Child	0.197 (0.398)	0.155 (0.362)
[SD b/t group]	[0.393]	[0.360]
[SD w/in group]	[0.059]	[0.041]
Hours Working	36.871 (12.467)	35.308 (13.560)
[SD b/t group]	[10.236]	[11.248]
[SD w/in group]	[7.120]	[7.593]
Enrolled in School	0.249 (0.433)	0.347 (0.476)
[SD b/t group]	[0.333]	[0.373]
[SD w/in group]	[0.275]	[0.297]
Educational Attainment	12.626 (1.341)	12.932 (1.572)
[SD b/t group]	[1.169]	[1.335]
[SD w/in group]	[0.657]	[0.831]
N (person-years)	1064 (2128)	1034 (2068)

Table 3. Coefficients and (standard errors) from the Logistic Regression Models
Estimating Individual's Likelihood of Registration and Voting, 1986

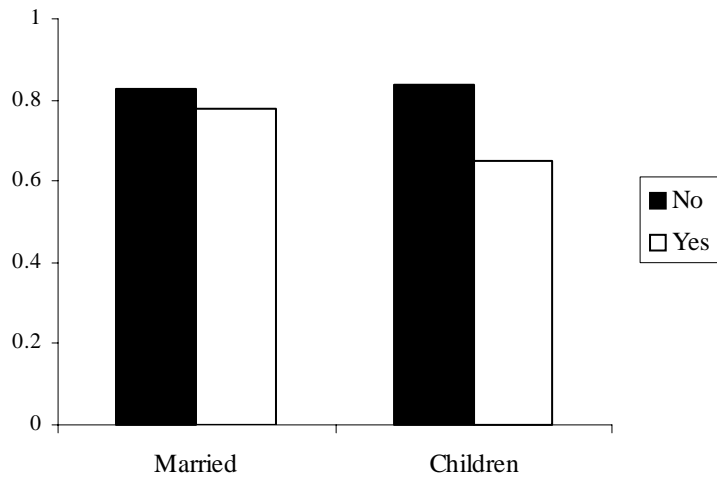
	Registration	Voting
	Model 1	Model 2
<i>Demographic/Background</i>		
Female	0.047 (0.054)	0.141* (0.070)
African-American	0.422** (0.078)	-0.142 (0.095)
Hispanic	0.082 (0.069)	-0.275** (0.090)
Other	-0.560** (0.110)	-0.570** (0.150)
Urban	-0.023 (0.065)	0.216* (0.083)
Rural	-0.045 (0.063)	-0.070 (0.080)
Test Score	0.011** (0.004)	0.016** (0.005)
High School Grades	0.008* (0.004)	0.017** (0.005)
Civic Participation	0.629** (0.075)	0.594** (0.090)
Father's Education	0.034* (0.016)	0.029 (0.021)
Mother's Education	0.073** (0.018)	0.020 (0.022)
Father's Occupation	-0.002 (0.002)	0.002 (0.003)
Mother's Occupation	0.004^ (0.002)	0.001 (0.003)
<i>Married</i>	-0.150** (0.055)	-0.135^ (0.070)
<i>Children</i>	-0.016 (0.069)	-0.074 (0.088)
<i>Hours Working</i>	-0.000 (0.002)	0.000 (0.003)
<i>Enrolled in School</i>	0.241** (0.073)	0.212* (0.091)
<i>Educational Attainment</i>	0.138** (0.020)	0.037 (0.024)
Intercept	-3.444** (0.416)	-1.976** (0.517)
N	8755	6475

**p<=0.01, *p<=0.05, ^p<=0.1

Table 4. Coefficients and (standard errors) from the Fixed-Effects Models
 Estimating Registration and Voting, 1984-1986

	Registration		Voting	
	Model 1	Model 2	Model 3	Model 4
<i>Married</i>	0.084 (0.129)	-0.319* (0.141)	0.203 (0.144)	-0.276^ (0.163)
<i>Children</i>	-0.187 (0.522)	-1.022* (0.525)	0.173 (0.781)	-0.874 (0.778)
<i>Hours Working</i>	0.006 (0.005)	0.004 (0.005)	0.006 (0.005)	0.004 (0.005)
<i>Enrolled in School</i>	-0.099 (0.131)	0.174 (0.142)	-0.640** (0.132)	-0.303* (0.132)
<i>Educational Attainment</i>	0.293** (0.061)	0.108^ (0.062)	0.346** (0.057)	0.085 (0.059)
<i>Year</i>		0.422** (0.039)		1.161** (0.087)
N (person-years)	1064 (2128)	1064 (2128)	1034 (2068)	1034 (2068)

**p<=0.01, *p<=0.05, ^p<=0.1

Figure 1. Probability of Registration**Figure 2. Probability of Voting**