



Notes on recent elections

The relationship between age and turnout: A roller-coaster ride

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1. Introduction

The curvilinear impact of age on turnout is one of the most robust findings in the study of turnout. A relatively low level of participation during early adult life, a gradually growing mobilization among middle-aged voters and a soft decline with old age have been reported since the seminal analyses conducted in the 1930's (for reviews, [Milbrath, 1965](#), 134; [Wolfinger and Rosenstone, 1980](#), 37). Findings from Denmark, Finland and Lubbock, Texas, that are based on large scale register data acquired directly from electoral wards, reveal however an intriguing new pattern that expands our current understanding of the relationship between age and turnout. During the first years after acquiring franchise, turnout declines ([Bhatti and Hansen, 2012](#); [Elklit et al., 2000](#); [Martikainen and Wass, 2002](#); [Martikainen and Yrjönen, 1991](#)).¹

In this research note, we suggest that the relationship between age and turnout has the shape of a roller-coaster, instead of a solely curvilinear effect of age on turnout. The note is structured as follows. In the next

section, we briefly discuss the relationship between age and turnout in the existing literature. In the empirical section, the impact of age on turnout in the Danish, Finnish and the U.S. elections of varying types is first reported by country and period, followed by a more detailed focus on young voters among whom the effect of age mostly differs from the results obtained in previous studies. The implications of our findings and factors potentially connected to this voting pattern are discussed in the concluding section.

2. The curvilinear relationship between turnout and age

Alongside with education, age is the strongest individual-level factor accounting for turnout ([Blais, 2000](#), 52). The curvilinear relationship between age and turnout is well-established in the literature. An increase in turnout in the beginning of the life-cycle has been connected to various adult-roles, such as settling down (i.e. less residential mobility), marriage, community ties in terms of home ownership, getting a job, and leaving school (for review, [Highton and Wolfinger, 2001](#), 202–203).² Among middle-aged voters, church attendance, increased activity in the community and various organizations, stronger party attachment and growing income all contribute positively to turnout ([Strate et al., 1989](#), 444). People in their 40s and 50s

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² In their empirical investigation of the impact of such adult-roles supplemented by leaving home, [Highton and Wolfinger \(2001\)](#) however found only the entrance of labor force and living away from home to increase the propensity to vote.

also have less career-pressures and more leisure time after their children have left the home. These factors may increase their interest in politics (Glenn and Grimes, 1968).

Finally, lower turnout figures among senior citizens are usually associated with physical infirmities (Milbrath, 1965, 135), generational differences as older women are socialized to consider the political arena to be dominated by men and thus vote to a lesser extent, and a higher proportion of voters living without a spouse (Wolfinger and Rosenstone, 1984, 37–41) and children in the household (Goerres, 2007, 98).

A few studies have noted that turnout appears to be slightly higher among first-time voters compared to those voting for the second time, but the phenomenon has, to our knowledge, not been discussed in detail (Konzelmann et al., 2011; Martikainen and Wass, 2002, 66; Martikainen and Yrjönen, 1991, 27; Metje, 1991; for the opposite finding, Meredith, 2009). In this study, we identify a decline in turnout among 19–21-year-old voters which is not related to the first-time boost.

3. Data

Studies examining the relationship between turnout and age are almost without exceptions based on survey data. This leads to three kinds of challenges. Firstly, self-reported turnout is sensitive to misreporting, particularly over-reporting, due to social desirability (e.g. Karp and Brockington, 2005; Swaddle and Heath, 1989). Secondly, the groups with lowest level of political interest are often severely underrepresented, i.e. citizens who have a lower propensity to vote correspondingly have a lower propensity to take part in surveys on political behavior. Consequently, aggregated turnout is often overestimated in surveys. Finally, as surveys contain a limited number of respondents in each age group, fine-grained age effects are difficult to separate from sampling error. Individuals are thus often merged into wider age groups. While this solution is necessary in terms of the reliability of the results, it can simultaneously hide some interesting nuances regarding the impact of age, especially among the youngest voters. By utilizing three large scale public record datasets in this study, we are able to investigate the age–turnout relationship in a more nuanced manner.

In the Finnish context we use individual-level register data from the parliamentary elections of 1987 and 1999 compiled by Statistics Finland. In both datasets, the information on voting from electoral wards is linked with population registration data on the basis of personal identification numbers. The linkage rate is more than 99.5 per cent.³ The data cover the mainland Finnish electorate excluding Åland ($N = 3,656,411$ in 1987, $N = 3,925,668$ in 1999). The age of the voters is listed in years.⁴ In addition, a ten per cent sample of all 18–30-year-old voters ($N = 80,699$) is available from the 1999 parliamentary

elections where the age of each individual is listed in months.

In Denmark, individual-level register data have been collected from two municipalities in the municipal elections of 1997 ($N = 628,659$) and from 44 municipalities in the municipal elections of 2009 ($N = 2,336,772$). After both elections, the electoral registers were computerized manually by registering for each social security number whether a person voted.⁵ As age was available directly based on the social security numbers, the linkage rate was 100 per cent (for 1997 the age was only available in years, while the 2009 data include age in days).

In Lubbock, Texas, a mid-size city of approximately 150,000 registered people in West Texas, the data including birthdays and government issued voting records from the general elections of 2006 and 2008 and the three primary elections held in 2006, 2008 and 2010 are available. The data cover 70,731 persons in total. It should be noted that the American data contains only registered individuals and not all eligible individuals, which should lead to some caution in interpreting the results from this dataset.

In sum, we have register-level data from three countries that differ from each other on a number of parameters. For instance, whereas in Denmark and Finland voter registration is administrated by the government, in the U.S. voters are required to register in order to vote. In addition, and partly related to registration requirements (e.g. Powell, 1986; Squire et al., 1987; Wolfinger and Rosenstone, 1980, 61–88), turnout is substantially lower in the U.S. than in most European countries and especially in the Nordic countries. Finally, the elections under investigation vary in their type, as the data cover local elections from Denmark, parliamentary elections from Finland, and primary as well as general elections from the U.S.

4. Turnout and age: findings from register-based studies

In this section, we examine the relationship between age and turnout using register-level data from Denmark, Finland and Lubbock, Texas. Fig. 1 reports turnout in each context in each election by the age of the individual measured in years. Turnout among 18-year-olds is considerably higher compared to a couple of preceding age groups in all three countries. In Finland, 55.4 per cent of 18-year-olds voted in the elections of 1999, while the corresponding figures for 19-year-olds are 50.7 per cent, for 20-year-olds 48.6 per cent and for 21-year-olds 48.5 per cent. With more than 60,000 eligible citizens in each age group, this result is not a reflection of a sampling error. Moreover, since we are dealing with complete register-level data, the result is not attributable to differential social desirability bias or sampling bias. The same observation applies to the 1987 elections. In both elections, it is

³ Data from six municipalities are missing.

⁴ A more detailed description of the data sets is available in Martikainen and Yrjönen, 1991 and Martikainen and Wass, 2002 (for description in English, Martikainen et al., 2005).

⁵ 25 per cent of voters used a barcode on the polling card and computerization was thus not necessary.

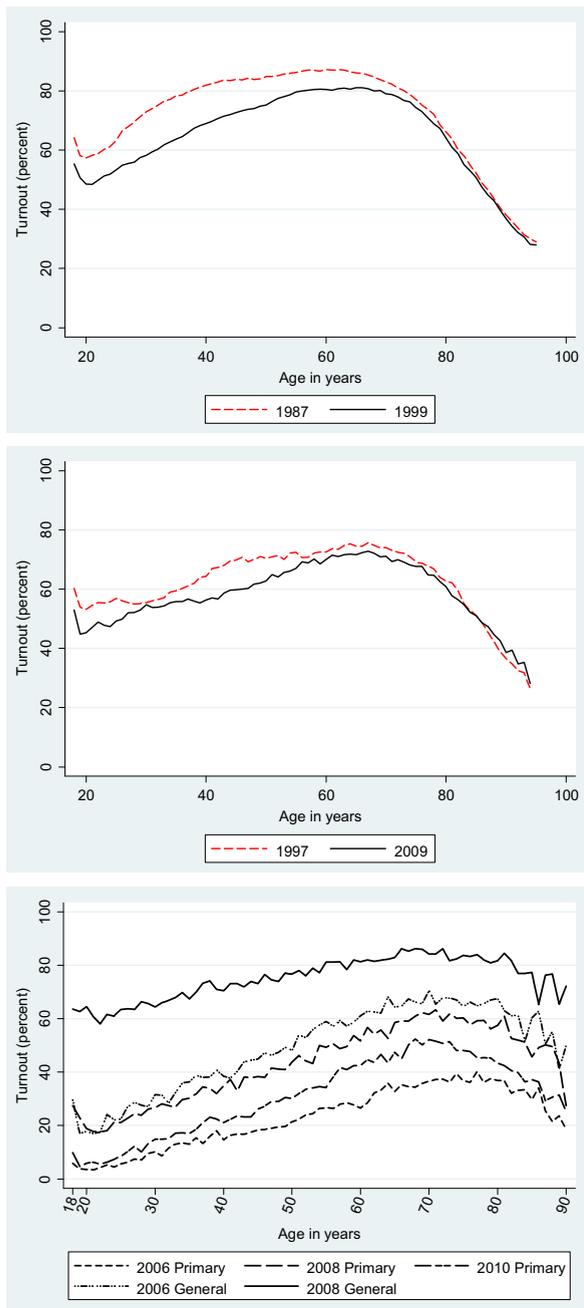


Fig. 1. Turnout by age (in years) in Finland, Denmark and Lubbock, Texas (%). Turnout by age (in years) in the Finnish parliamentary elections of 1987 and 1999 (%). Turnout by age (in years) in the two largest municipalities in Denmark (Copenhagen and Aarhus 1997 and 44 municipalities in 2009 (%)). Turnout by age (in years) as percentage of registered voters in 2006 and 2008 general elections and 2006, 2008 and 2010 primaries in Lubbock, Texas (%).

not until the late 20s that turnout reaches the same level than that of 18-year-olds.

The patterns appearing in Danish elections are almost identical with the Finnish data. The drop among the youngest cohorts is, however, even steeper. In the 2009

elections, turnout was 57.0 per cent among 18-year-olds, 47.5 per cent among 19-year-olds, 43.6 per cent among 20-year-olds and 42.6 per cent among 21-year-olds. We can thus notice a decline of 14–15 percentage points in turnout over three years, when data are presented year by year instead of age groups. In addition, the turnout of 18-year-olds is not reached before the age of 34. Also in Lubbock, turnout among 18-year-olds is higher than turnout among 19-year-olds in all five elections, although the magnitude of the differences is 1–13 percentage points and thus closer to Finland than Denmark.⁶ As our data from Lubbock cover only registered individuals, it is unclear whether the same decline in turnout appears also in turnout measured on the basis of all eligible voters, given that registration levels also increase during the first years of eligibility.⁷ Since the decline in all countries occurs gradually within the group of first-time voters, it can not be accounted for as a mere first-time voter effect.

Besides the decline among the very young, the remaining part of the age–turnout relationship takes the expected curvilinear form. One slight surprise is the steepness of the decline with age in Denmark and Finland. In Finland, turnout peaked at 65 years of age in the 1999 elections. Of that cohort, 81.1 per cent of the eligible voters went to the polls. At the age of 85, the corresponding proportion was 50.8 per cent and at the age of 90 only 36.9 per cent. In Denmark, the decline from the peak in turnout, namely at 66 years of age to 85 years, is slightly smaller than in Finland, i.e., about 23 percentage points in 2009. Turnout further drops 14 percentage points between the ages of 85 and 90. In both countries, the gap between the elections diminishes for the seniors. This indicates that while the decline in turnout during the first years after enfranchisement is almost certainly not generational, part of the drop among the elderly might be generational (Bhatti and Hansen, 2011). In Lubbock, turnout among the elderly declines much more moderately than in the two Nordic countries.

In relation to the extensive discussion on low turnout among young voters (e.g. Blais, 2000; Blais et al., 2004; Franklin, 2004; Wass, 2008; Wattenberg, 2008), the

⁶ The difference in turnout between the two youngest generations is statistically significant in three elections. The turnout ratios between the two cohorts are (N): 6(411)/4(666) (2006 primary elections), 10(446)/5(859)*** (2010 primary elections), 28(407)/23(568)* (2008 primary elections), 30(368)/17(597)*** (2008 general elections) and 64(886)/63(1113) (2008 general elections) (**p < 0.01, **p < 0.05, *p < 0.1 (2-tailed t-test)).

⁷ To further investigate this possibility, we examined the 2008 and 2010 Current population surveys (CPS). In 2008, no difference could be detected in turnout between 18-year-olds and 19-year-olds as a percentage of the U.S. citizens, while turnout as a percentage of the registered declined from 86.7 per cent to 81.6 per cent. In 2010, there was also a decline in turnout among 18-year-old and 19-year-old registered voters, but the overall turnout among all eligible voters increased by about two percentage points. A potential interpretation would be that the results for Lubbock hold only for those registered. Another possibility is that CPS misses the drop in turnout due to its nature as self-reported data. Naturally, it could also be the case that Lubbock is unrepresentative of the country. The CPS results should lead to some caution in interpreting the results from Lubbock.

findings concerning the first end of life spectrum are quite surprising. While it should be noted that we have only examined three countries, the relatively parallel shape of the lines in the left tail of the relationship in each election and in each country under scrutiny indicates that the drop in turnout is not restricted to a specific institutional context, period or the saliency of the elections. The observed negative effect of age on turnout among the young thus appears to be more linked to an individual's life cycle than generational differences.⁸ Moreover, it does not seem to be restricted to the two Nordic countries with high turnout, but can also be found in the U.S. mid-term elections and primaries that are characterized by low turnout.

Given the large scale of our sample, it is possible to provide an even more detailed picture of the relationship between turnout and age during the first years of eligibility. In Fig. 2, the impact of age on turnout is plotted in two-month intervals from 18-year-olds up to 30-year-olds for those elections where we have access to information on age in months or even by birthday as in Denmark and in Lubbock. The figure shows substantial variation even within the group of 18-year-olds in all three contexts.

The observation is important for two reasons. Firstly, it further emphasizes that the drop in turnout is not related to the first-time voter effect, since the variation primary occurs within the group of first-time voters. The peak in turnout is most noticeable when voting takes place immediately after enfranchisement. Within the next two years, voting propensity declines by 0.3 percentage point each month in Finland, and by one percentage point per month in Denmark. This can be considered to be quite a substantial effect. Secondly, it indicates that the more aggregated measure of age is used, the more the decline in turnout among young voters is underestimated. For Denmark, for instance, the decline was from 57.0 to 42.6 per cent when measured in one-year intervals. When two-month intervals are used, the decline is even bigger, namely from 62.5 per cent ($N = 5437$) to 42.2 per cent ($N = 6167$).

5. Discussion

In this research note, a surprising exception to the curvilinearity in the relationship between age and turnout has been identified based on register data from Denmark, Finland and Lubbock, Texas (though the latter case is more uncertain as only registered individuals were studied). In the left tail, turnout in fact decreases during the first years after enfranchisement.

The fact that specific voting pattern among the youngest voters has not been identified in the existing literature may be due to several reasons. Firstly, the most

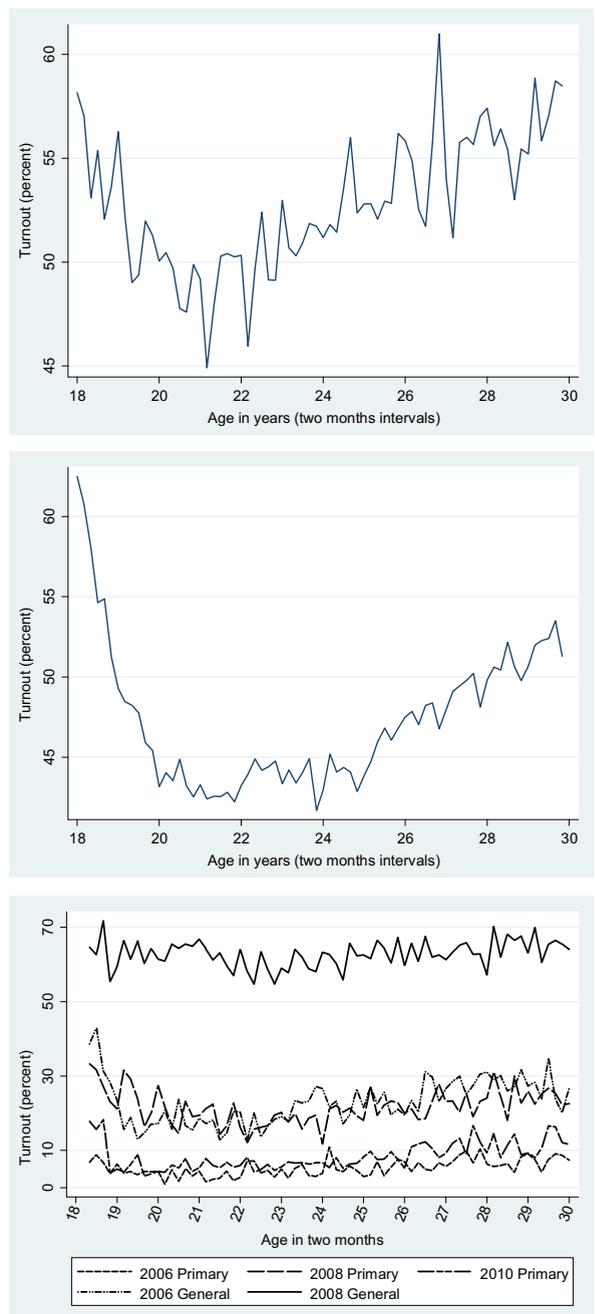


Fig. 2. Turnout by age (in two months intervals) among 18–30-year-olds in Finland, Denmark and Lubbock, Texas (%). Turnout by age (in two months intervals) in the Finnish parliamentary elections of 1999 (10 per cent sample) (%). Turnout by age (in two months intervals) at the 2009 Danish municipal elections (44 municipalities) (%). Turnout by age (in two months) as percentage of registered voters in 2006 and 2008 general elections and 2006, 2008 and 2010 primaries in Lubbock, Texas (%).

⁸ It should be noted that this remark is restricted to curvilinear patterns in turnout. When looking at overall effect of age, generation and period on turnout in Finland and the U.S. during a longer time-span, also a clear generational effect can be found (Lyons and Alexander, 2000; Wass, 2007).

obvious possibility is that the phenomenon would be exclusively prevalent in the contexts examined in this note. Though we certainly do not claim that the decline in turnout during the first years after enfranchisement is universal, the substantial variation in contexts and types

of elections suggests that the decline is a general phenomenon.⁹ Secondly, differential misreporting in surveys may be a contributing factor to the underestimation of the turnout drop among the young voters.¹⁰ A third possibility is related to the sample size in most surveys which requires that turnout is reported only among age groups. In the Danish case, for instance, a drop in turnout of 20 percentage points is found when the age is marked in two-month intervals, with one-year intervals the drop is 14–15 percentage points, when the first-time and the second-time voters are compared the drop in turnout is only three percentage points. Furthermore, even when using one-year intervals, a very large sample is needed in order to confidently identify the difference between 18-year-olds and 19-year-olds. For instance, by randomly drawing subsamples from the Finnish data from the parliamentary elections of 1999 used in this study, we find that even with a sample of 1000 respondents between the ages of 18 and 30 (an unusually high number for a survey), the difference between 18-year-olds and 19-year-olds is only significant in six per cent of the trials (based on 1000 trials).

Our findings have several implications for studies of youth electoral participation. Firstly, the results suggest that the overall understanding of the youngest age group as coherently the most passive voters should be further examined. In fact, 18-year-olds were as active as 27-year-olds in the Finnish parliamentary elections of 1999, and as active as the 29 year-olds in the Danish municipal elections of 2009. Secondly, the results illustrate the particular characteristics of the years between 18 and 21 which may also account for the decline in turnout among 19–21-year-olds. Between the ages of 18 and 21, young adults leave

their parental home and become less affected by their parents' higher propensity to vote (Bhatti and Hansen, 2012; Fieldhouse and Cutts, forthcoming; Martikainen and Wass, 2002, 66). Leaving home may actually in the short run have a negative impact on turnout (Bhatti and Hansen, 2012; Smets, 2010, 81).¹¹ More broadly, the decline in turnout from the age of 18 to the age of 21 may be connected to the specific transitional nature of that period in an individual's life cycle (Franklin, 2004). Given the general prolongation of adolescence already noticed several decades ago (Berger, 1960, 12, also Smets, 2010, 76), many adult roles are now acquired much later in life than they were among the older generations. Compared to 18-year-olds, voters in their 20's are much more occupied with various pressures, such as applying for higher education.

Finally, our findings could be seen as lending support for lowering of the voting age. Franklin (2004, 213) has argued that acquiring a voting habit would be substantially easier, if voters were still at high school at the time of their first elections. The habit of voting could be learned in the context of a civic class project. Since our results show, in line with Franklin's argument, that at the age of 18 people are substantially more prone to vote than in the following few years and since an individual on average faces his/her first elections two years after enfranchisement (Franklin, 2004, 63), lowering the voting age to 16 could be optimal. A recent study conducted in Austria, the only European country where 16-year-olds are eligible to vote, shows that while turnout among voters under 18 is relatively low, they are more interested in politics than 18–21-year-olds (Wagner et al., 2011). Consequently, experiencing the first elections in a social environment that is favorable for participation and being more motivated than the older peers, can have a positive effect on a young citizen's political socialization.

⁹ While focusing on only three countries, we also examined data from Germany and Sweden. In Germany, the representative electoral statistics include aggregate data at the Länder level for European Bundestag and Landtag elections (a total of 17 elections). The statistics are based on a random selection of 2700 ballot box districts and 400 postal vote districts, each with more than 400 eligible voters (to ensure voter anonymity). In the selected districts, special ballot papers are used in order to make it possible to identify the gender and the age group of the voter (10 groups) (for further description, Steinbrecher et al. (2007, 46–48)). Consequently, for the investigated districts the exact turnout is available in ten age intervals. There is a clear decrease in turnout from first-time voters (aged 18–21) to second time voters (aged 21–25) which is consistent with the findings from Denmark and Finland. For instance, in the six European elections the difference between the two first age groups varied between 4.5 and 6.5 percentage points (Steinbrecher et al., 2007, 183–191). In Sweden, validation has been used for the turnout question, since the national elections studies (SNES) were launched in the 1956 elections. In the parliamentary elections of 1976, franchise was extended to 18-year-olds. A pooled analysis of SNES results 1976–2010 shows a turnout of 86.6 per cent among 18-year-olds ($n = 537$), while the corresponding figure among 19-year-olds is 82.8 per cent ($n = 731$) (p -value for the difference = 0.06, two-tailed test). We thank Henrik Oscarsson and Mikael Persson for providing us with these figures.

¹⁰ We examined three large scale surveys, namely the 2008–2010 CPS, wave 3 of CSES, and a pooled file of European election studies (EES). Only in the 2009 pooled EES, were there indications of a turnout drop during the first year after enfranchisement (turnout among 18 year-olds was 62.6%, $n = 185$ and turnout among 19-year-olds was 50.4%, $n = 362$, two-tailed p -value = 0.007, sample weight applied), but the result did not hold when data from 1979 to 2004 elections were included. We have thus not been able to identify the pattern in surveys that do not use validation.

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¹¹ Smets (2010, 81) points out that also Highton and Wolfinger (2001, 207) find young voters living with parents to have higher propensity to vote while looking only at bivariate relationship. After controlling for other variables potentially related to this relationship, such as increased mobility among those living away from childhood home, leaving home has however a positive impact on turnout.

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