

## ***Political Interest, Cognitive Ability and Personality: Determinants of Voter Turnout in Britain***

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This article uses longitudinal data from the National Child Development Study (NCDS) to investigate the determinants of voter turnout in the 1997 British general election. It introduces measures of cognitive ability and personality into the participation literature and finds that they are significant determinants of turnout. It also shows that standard turnout models may be biased by the inclusion of the much used ‘interest in politics’ measure. A bivariate probit model of turnout and political interest finds that individuals with high comprehension ability and an aggressive personality are more likely to both turn out to vote and have an interest in politics.

Electoral participation is one of the most widely studied topics in political science. While the right to vote is universal in advanced democracies not everyone exercises this right and the voluminous literature on voter turnout attempts to gauge both why people vote and what type of people vote. A stable relationship has been identified between voter turnout and a number of individual characteristics including education, political interest and civic duty.<sup>1</sup> This article uses unique longitudinal data to develop the existing electoral participation literature in three ways. First, it introduces measures of cognitive ability into the voting literature. Secondly, it develops the political psychology literature by incorporating measures of personality into the turnout model. And finally it questions the causal impact of political interest on voter turnout.

Much of the turnout literature, particularly in the United States, has identified a positive relationship between education and electoral participation.<sup>2</sup> Recent studies, however, have argued that this relationship may be spurious rather than causal, whereby some unobserved characteristics drive both educational attainment and electoral participation.<sup>3</sup> Education is considered to increase turnout by developing the voters’ cognitive skills which in turn enables them to process complex information about the political system and to enhance feelings of civic duty. Yet few turnout studies directly use measures of cognitive skills and typically rely on education as a proxy for them. However, education may have an

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<sup>1</sup> For a review of the literature on voter turnout, see Norman H. Nie, Jane Junn and Kenneth Stehlik-Barry, *Education and Democratic Citizenship in America* (Chicago: University of Chicago Press, 1996).

<sup>2</sup> Raymond E. Wolfinger and Steven J. Rosenstone, *Who Votes?* (New Haven, Conn.: Yale University Press, 1980); Steven J. Rosenstone and John Mark Hansen, *Mobilization, Participation and Democracy in America* (New York: Macmillan, 1993); Nie, Junn and Stehlik-Barry, *Education and Citizenship in America*; Harold D. Clarke, David Sanders, Marianne C. Stewart and Paul F. Whiteley, *Political Choice in Britain* (Oxford: Oxford University Press, 2004).

<sup>3</sup> See Thomas S. Dee, ‘Are There Civic Returns to Education?’ *Journal of Public Economics*, 88 (2004), 1697–720; Kevin Milligan, Enrico Moretti and Philip Oreopoulos, ‘Does Education Improve Citizenship? Evidence from the US and the UK’, *Journal of Public Economics*, 88 (2004), 1667–95.

independent effect on turnout *conditional* on cognitive ability and, in addition, education is likely to be a poor proxy for cognitive skills. While a small number of studies have analysed the relationship between cognitive ability and civic participation, the measures used are based on cognitive tests taken contemporaneously with the participation data and are thus more likely to reflect *acquired* rather than *innate* ability.<sup>4</sup> This article overcomes this problem by using measures of cognitive ability which are taken at age 11. Given the mixed evidence concerning education and turnout in Britain, introducing cognitive ability may shed new light on this relationship.

Our second innovation introduces psychometric measures into the turnout literature. While several studies have found a direct relationship between personality types and ideological beliefs,<sup>5</sup> personality types and political party choice<sup>6</sup> and personality types and volunteering,<sup>7</sup> none to date have analysed the effect of personality on the decision to turn out to vote. One can argue that personality affects electoral participation as it can influence how voters perceive and process the costs and benefits of voting. This article examines the relationship between six dimensions of personality and voter turnout.

Finally, evidence suggests that voters with a greater interest in politics have higher turnout rates.<sup>8</sup> Recent studies, however, have argued that the decision to vote and the decision to acquire political information are jointly determined.<sup>9</sup> Similarly, as an example, an individual's demand for gin is very highly correlated with their demand for tonic. However, few would seek to 'explain' one of these outcomes in terms of the other, as its inclusion would swamp the impact of the other explanatory variables, although it would accurately 'predict' the dependent variable. This does not imply that the two variables inexorably move in the same direction since, although there are common factors driving the demand for both, there are other factors that are not common, for example their respective prices.

This article proposes that the observed relationship between political interest and voter turnout is problematic and may well not be causal. We demonstrate that excluding the

<sup>4</sup> Robert C. Luskin, 'Explaining Political Sophistication', *Political Behavior*, 12 (1990), 331–61; Sidney Verba, Kay Lehman Schlozman and Henry Brady, *Voice and Equality: Civic Voluntarism in American Politics* (Cambridge, Mass.: Harvard University Press, 1995); Nie, Junn and Stehlik-Barry, *Education and Democratic Citizenship in America*; W. Russell Neuman, *The Paradox of Mass Politics: Knowledge and Opinion in the American Electorate* (Cambridge, Mass: Harvard University Press, 1986); Seth M. Hauser, 'Education, Ability, and Civic Engagement in the Contemporary United States', *Social Science Research*, 29 (2002), 556–82.

<sup>5</sup> Alain van Hiel, Malgorata Kossowska and Ivan Mervielde, 'The Relationship between Openness to Experience and Political Ideology', *Personality and Individual Differences*, 28 (2000), 741–51.

<sup>6</sup> Gian Vittorio Caprara, Claudio Barbarnelli and Philip G. Zimbardo, 'Personality Profiles and Political Parties', *Political Psychology*, 20 (1999), 175–97.

<sup>7</sup> Carol Elshaug and Jacque Metzger, 'Personality Attributes of Volunteers and Paid Workers Engaged in Similar Occupational Tasks', *Journal of Social Psychology*, 141 (2001), 752–63; Gustavo Carlo, Morris A. Okun, George P. Knight and Maria Rosario T. de Guzman, 'The Interplay of Traits and Motives on Volunteering: Agreeableness, Extraversion and Prosocial Values Motivation', *Personality and Individual Differences*, 38 (2005), 1293–305.

<sup>8</sup> Acevedo and Krueger, in discussing the Voter's Illusion and the Personal Relevance hypotheses, argue that individuals vote because they derive psychological benefits from voting. See Melissa Acevedo and Joachim I. Krueger, 'Two Egotropic Sources of the Decision to Vote: The Voter's Illusion and the Belief in Personal Relevance', *Political Psychology*, 25 (2004), 115–34.

<sup>9</sup> See Valentino Larcinese, 'Information Acquisition, Ideology and Turnout: Theory and Evidence from Britain' (London School of Economics and Political Science Working Paper, 2002); David Dreyer Lassen, 'The Effect of Information on Voter Turnout: Evidence from a Natural Experiment', *American Journal of Political Science*, 49 (2005), 103–18.

potentially endogenous variable, political interest, from the turnout model leads to more plausible results, and then estimate a bivariate probit regression model to uncover the joint determinants of voter turnout and political interest.

This study addresses each of the above issues using the National Child Development Survey (NCDS), which is a unique longitudinal dataset containing information on a cohort of children born in Britain during the week of 3–9 March 1958. This rich dataset, which has yet to be used to examine voting behaviour, allows us to include a number of cognitive and non-cognitive factors measured in childhood that may influence future political behaviour. To the best of our knowledge this is the first birth cohort study to be utilized in the political science literature (the closest study being Jennings–Niemi’s Student–Parent Socialization study which tracks students on the verge of graduating from high school),<sup>10</sup> despite the vast advantages to be gained from analysing how early childhood factors influence political behaviour in adulthood.

The article is structured as follows: we first present an overview of the determinants of turnout and reveal how this study develops the current literature. These four sections analyse the relationships between voter turnout and education, cognitive ability, personality and political interest, respectively. We then discuss the literature on voter turnout in Britain specifically. The NCDS data and the methodology employed in the analysis are then introduced. And finally, we present the results of the analysis and conclude.

#### DETERMINANTS OF VOTER TURNOUT

Rational choice theory posits that electoral participation may be influenced by first, the cost of voting, in terms of processing information, forming decisions and the opportunity costs of going to the polls and, secondly, the benefits of voting, which are derived from fulfilling a civic duty and the policy benefits from the election outcome.<sup>11</sup> This section discusses the impact of education, cognitive ability, personality and political interest on voter turnout in terms of this rational choice framework.

#### *Education and Turnout*

Education is one of the most commonly cited explanations of electoral participation, particular in American studies. Individuals with higher education generally have a greater propensity to vote.<sup>12</sup> Education has been shown to affect turnout through various channels. It reduces both the cognitive and material costs of voting. Education develops the necessary cognitive skills that help voters to process complex political information, such as deciphering political rhetoric and selecting the appropriate candidate/party. It can also improve the socio-economic position of individuals, which in turn may lead to higher participation as these groups typically have a greater interest in the election outcomes. In

<sup>10</sup> M. Kent Jennings and Richard G. Niemi, *Generations and Politics* (Princeton, N.J.: Princeton University Press, 1981).

<sup>11</sup> Other theories of voter turnout include the perceived equity-fairness model, the social capital model, the civic voluntarism model, the cognitive mobilization model and the minimal rational choice model (see Clarke *et al.*, *Political Choice in Britain*, pp. 217–35).

<sup>12</sup> Angus Campbell, Philip E. Converse, Donald E. Stokes and Warren E. Miller, *The American Voter* (New York: Wiley, 1960); Wolfinger and Rosen, *Who Votes?* Nie, Junn and Stehlik-Barry, *Education and Democratic Citizenship in America*.

addition, education may instil a sense of civic duty by fostering democratic values and beliefs and encouraging participation in socially orientated activities.<sup>13</sup> Campbell shows that turnout is influenced by the civic culture that prevailed in the high school that the individual attended.<sup>14</sup> Education has also been shown to provide individuals with the necessary skills to deal with the bureaucracy of voting.<sup>15</sup> Finally, education may also increase political interest.<sup>16</sup> Education can therefore serve to both reduce the costs of voting (by providing information resources), while increasing the benefits (through feelings of civic duty).

The relationship between education and electoral participation in Britain is less unambiguous. Dalton finds a very low correlation between the two (although this is based on European rather than national elections).<sup>17</sup> Wattenberg also notes that the relationship between education and turnout is particularly weak in Britain, while Clarke, Sanders, Stewart and Whiteley find that education had no effect on turnout in the 2001 election.<sup>18</sup> In addition, Larcinese finds that once political information is controlled for, education has no effect on turnout in Britain.<sup>19</sup> Yet some studies have found that education does have an impact on turnout in Britain.<sup>20</sup> Overall the education/turnout hypothesis is weaker in British studies.

Several recent papers, primarily based on American data, have noted that the apparent relationship between education and turnout may not be causal. They argue that it represents a spurious correlation, whereby some unobserved characteristics of the individual drive them to both obtain more education and to vote.<sup>21</sup> Dee states that the relationship between education and civic participation may reflect unobserved individual, family or community traits. For example, parents who encourage their children to stay in school are also likely to instil a sense of civic duty, promote political interest and encourage voter turnout. Milligan, Moretti and Oreopoulos find a robust relationship between education and voting in the United States but not in Britain.<sup>22</sup> Both of these studies adopt a structural equation technique to account for unobserved characteristics that cause the possible spurious correlation between educational attainment and electoral participation, rather than searching for such characteristics. Indeed, few studies have attempted to uncover these unobserved traits.

### *Cognitive Ability and Turnout*

One such unobserved characteristic that may influence turnout is cognitive ability, which may enable greater political sophistication. Within the human capital literature, models of

<sup>13</sup> Wolfinger and Rosen, *Who Votes?*

<sup>14</sup> David E. Campbell, 'Vote Early, Vote Often', *Education Next* (Summer 2005), 32–69.

<sup>15</sup> Rosenstone and Hansen, *Mobilization, Participation and Democracy in America*.

<sup>16</sup> Verba, Scholzman and Brady, *Voice and Equality*.

<sup>17</sup> Russell J. Dalton, *Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies* (Chatham, N.J.: Chatham House Publishers, 2002).

<sup>18</sup> Martin P. Wattenberg, *Where Have All the Voters Gone?* (Cambridge, Mass.: Harvard University Press, 2002); Clarke *et al.*, *Political Choice in Britain*.

<sup>19</sup> Larcinese, 'Information Acquisition, Ideology and Turnout'.

<sup>20</sup> Charles Pattie and Ron Johnston, 'A Low Turnout Landslide: Abstention at the British General Election of 1997', *Political Studies*, 49 (2001), 286–305.

<sup>21</sup> Dee, 'Are There Civic Returns to Education?' Milligan, Moretti and Oreopoulos, 'Does Education Improve Citizenship?'

<sup>22</sup> Milligan, Moretti and Oreopoulos, 'Does Education Improve Citizenship?'

the economic returns to education typically find that education is correlated with innate or cognitive ability, and that when measures of ability are accounted for, the estimated impact of education on earnings is reduced. Empirical work investigating the link between cognitive ability and electoral turnout is relatively scarce, though a few studies have questioned whether the impact of education on civic participation is overstated due to the absence of 'cognitive ability' which may affect both educational attainment and electoral participation.<sup>23</sup> In the United States, Nie, Junn and Stehlik-Barry as well as Verba, Schlozman and Brady find that education influences electoral participation through affecting the voters' economic and social position and through increasing their verbal skills.<sup>24</sup> Neuman also finds that education and verbal ability influences political sophistication, though education has the dominant effect and the ability measure drops out once additional social and psychological variables are included.<sup>25</sup>

These studies assume that verbal ability is an outcome of education and that the causality is uni-directional. One could argue, however, that ability may have both a direct and indirect impact on participation. First, ability may influence participation indirectly by affecting education, which then increases the voter's cognitive skills and position in society. Secondly, ability may also affect participation directly, as regardless of education, children with high ability will become adults with high ability, and this will reduce the cost of voting by providing skills that help to process political information and decision making.

Herrnstein and Murray's controversial work on the importance of intelligence argues that 'education predicts political involvement in America because it is primarily a proxy for cognitive ability'.<sup>26</sup> They test the relationship between cognitive ability and political behaviour using the US National Longitudinal Survey of Youth. While they find that middle-class values are related to ability, by omitting education from the analysis, their central hypothesis, i.e. that ability is a proxy for education, cannot be tested. A study by Luskin finds that education has no impact on political sophistication when the intelligence measure is included, suggesting that the apparent relationship between education and participation may be due to individual traits such as intelligence.<sup>27</sup> However, the intelligence measure was the subjective opinion of the interviewer and hence may be unreliable.

One form of ability that is likely to mediate the effect of education on various forms of civic behaviour, especially voting, is functional literacy since many voluntary and political activities require mastering written documentation. Denny models the probability of an individual engaging in voluntary activity in around twenty, mostly Organization for Economic Co-operation and Development (OECD), countries.<sup>28</sup> He shows that the marginal effect of a year's education on the probability of participation is typically halved when one includes a measure of functional literacy.

<sup>23</sup> Luskin, *Explaining Political Sophistication*; Verba, Schlozman and Brady, *Voice and Equality*; Nie, Junn and Stehlik-Barry, *Education and Citizenship in America*; Neuman, *The Paradox of Mass Politics*; Hauser, 'Education, Ability, and Civic Engagement in the Contemporary United States'. Note that these studies all concern the United States; to date, no study has investigated the link between ability and political behaviour in Europe.

<sup>24</sup> Nie, Junn and Stehlik-Barry, *Education and Democratic Citizenship in America*; Verba, Schlozman and Brady, *Voice and Equality*.

<sup>25</sup> Neuman, *The Paradox of Mass Politics*.

<sup>26</sup> Richard Herrnstein and Charles Murray, *The Bell Curve: Intelligence and Class Structure in American Life* (New York: The Free Press, 1994, p. 253).

<sup>27</sup> Luskin, 'Explaining Political Sophistication'.

<sup>28</sup> Kevin Denny, 'The Effects of Human Capital on Social Capital: A Cross-Country Analysis' (UCD Economics working paper 03/20, July 2003).

By far the most comprehensive study of ability and civic engagement was conducted by Hauser for the United States.<sup>29</sup> Using three datasets (the 1976 American National Election Study (ANES); 1974–90 General Social Surveys (GSS); and the Wisconsin Longitudinal Study (WLS)) he tests the proposition that education is a proxy for cognitive ability. The measures of ability used include an interviewer's rating of intelligence, a verbal ability measure and an ability measure taken prior to leaving high school. While he derives inconclusive results using the ANES data, the GSS and the WLS data suggest that education is not a proxy for ability, as education appears to have a consistent effect on civic engagement even when ability is controlled for. In addition, he states that if one had to make a choice between education and ability, then education is a better predictor.

We suggest that the ability variables used by Hauser are unsatisfactory. Given that they are measured when voters are either adults or about to finish high school it is likely they are influenced by education. A better measure of ability is one that is taken sufficiently early for it to be unaffected by education and hence a better reflection of innate ability. Unlike previous studies which only include one component of ability, namely verbal ability, the ability measure used in this analysis is divided into separate mathematical, comprehension, verbal and non-verbal components. These were measured at age 11.

### *Personality and Turnout*

One factor which has previously gone unexplored in the turnout literature is the effect of individual personality traits on electoral decisions. Recently, the economics literature has noted the importance of personality types for labour market outcomes, with certain traits, such as conscientiousness and openness having a positive impact on earnings and neuroticism having a negative impact.<sup>30</sup> There is also an evolving literature which finds that personality plays a major role in the formation of ideology and in determining political party affiliation. Caprara, Barbaranelli and Zimbardo find that centre-right voters in Italy tend to display more energy and conscientiousness compared to centre-left voters who display greater agreeableness and openness.<sup>31</sup> In addition, several authors have identified a negative relationship between openness to experience and conservatism.<sup>32</sup> Fowler and Kam find that greater patience is also associated with higher turnout, as the benefits of voting occur after the costs.<sup>33</sup>

<sup>29</sup> Hauser, 'Education, Ability, and Civic Engagement in the Contemporary United States'.

<sup>30</sup> Gerrit Muller and Erik Plug, 'Estimating the Effect of Personality on Male–Female Earnings', *Industrial and Labor Relations Review*, 59 (2006), 3–22; Samuel Bowles, Herbert Gintis and Melissa Osborne, 'The Determinants of Earnings: A Behavioural Approach', *Journal of Economic Literature*, 39 (2001), 1137–76; Melissa Osborne-Groves, 'How Important is your Personality? Labor Market Returns to Personality for Women in the US and UK', *Journal of Economic Psychology*, 26 (2005), 827–41; Ellen K. Nyhus and Empar Pons, 'The Effect of Personality on Earnings', *Journal of Economic Psychology*, 26 (2005), 363–84.

<sup>31</sup> Caprara, Barbaranelli and Zimbardo, 'Personality Profiles and Political Parties'.

<sup>32</sup> Van Hiel, Kossowska and Mervielde, 'The Relationship between Openness to Experience and Political Ideology'; Alain van Hiel, Ivan Mervielde and Filip De Fruyt, 'The Relationship between Maladaptive Personality and Right-wing Ideology', *Personality and Individual Differences*, 36 (2004), 405–17; P. D. Trapnell, 'Openness versus Intellect: A Lexical Left Turn', *European Journal of Personality*, 8 (1994), 273–90; R. Riemann, C. Grubich, S. Hempel, S. Mergl and M. Richter, 'Personality and Attitudes Towards Current Political Topics', *Personality and Individual Differences*, 15 (1993), 313–21; R. R. McCrae, 'Social Consequences of Experimental Openness', *Psychological Bulletin*, 120 (1996), 323–37.

<sup>33</sup> James H. Fowler and Cindy D. Kam, 'Patience as a Political Virtue? Delayed Gratification and Turnout', *Political Behaviour*, 28 (2006), 113–28.

Volunteering, like voting, is another form of social participation. Several studies have found that individuals possessing certain personality traits have a greater tendency to volunteer. Elshaug and Metzer examine the differences between the personality traits of volunteers and paid workers in Australia using the five-factor model of personality.<sup>34</sup> They find that extroversion and agreeableness typify volunteering personalities. Similar results were found by Carlo, Okun, Knight and de Guzman, who examine the impact of agreeableness, extroversion and pro-social value motivations on volunteering.<sup>35</sup> However, it should be noted that the personality traits that encourage volunteering and turnout may differ. For example, as voting is a personal and private act, extroversion, which favours social interactions, may not affect the propensity to turn out.

While the link between personality and ideology is quite logical, such that political parties embody both certain personalities and values which may appeal to certain voters, the link between personality and voter turnout is less obvious. It is possible that different personality traits affect how voters perceive the costs and benefits of voting. For example, individuals with greater energy may be more likely to vote than individuals who are lethargic.

This article introduces six 'narrow' measures of personality which were reported by the individuals' teachers at the age of 16. These measures differ somewhat from the conventional 'Five-Factor' model, although there are overlaps.<sup>36</sup> Each personality trait is measured on a scale of 1 to 5 and are the following – Cautious/Impulsive, Moody/Even-Tempered, Timid/Aggressive, Flexible/Rigid, Sociable/Withdrawn and Lazy/Hardworking. While the majority of personality studies generally use contemporary personality measures taken in adulthood, an earlier personality measure may be more desirable. A contemporaneous measure is likely to reflect both an individual's underlying personality and more idiosyncratic attitudes and life experiences, for example dissatisfaction with the current political environment. An earlier measure will abstract from these short-term factors, though an individual's personality may be subject to change over time.<sup>37</sup> However, if any of these early personality measures predict voter turnout, it provides more striking evidence in favour of the proposition that personality matters. Studies by Alford, Funk and Hibbing use data on monozygotic and dizygotic twins to examine genetic influences on political attitudes. Since they find that both political orientations and personality are highly heritable, the age at which personality is measured may not matter.<sup>38</sup>

<sup>34</sup> Elshaug and Metzer, 'Personality Attributes of Volunteers and Paid Workers'.

<sup>35</sup> Carlo *et al.*, 'The Interplay of Traits and Motives on Volunteering'.

<sup>36</sup> The majority of the above studies use the classic 'Five-Factor' Model which Van Hiel *et al.* describe as 'a dimensional representation of personality structures referring to Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness to experience'. See Van Hiel, Kossowska and Mervielde, 'The Relationship between Openness to Experience and Political Ideology', p. 742.

<sup>37</sup> See Sanjay Srivastava, Oliver P. John, Jeff Potter and Samuel D. Gosling, 'Development of Personality in Early and Middle Adulthood: Set like Plaster or Persistent Change?' *Journal of Personality and Social Psychology*, 84 (2003), 1041–53. However, there is a substantial body of evidence pointing to stability of personality over time though it is less pronounced among younger adults, see Wendy Johnson, Matt McGue and Robert F. Krueger, 'Personality Stability in Later Adulthood: A Behavioral Genetic Analysis', *Journal of Personality*, 73 (2005), 523–51, for example.

<sup>38</sup> John R. Alford, Carolyn L. Funk and John R. Hibbing, 'Genes, Political Orientations, and Social Personality' (paper presented at the 2005 Annual Meeting of the Midwest Political Science Association in Chicago, 2005); John R. Alford, Carolyn L. Funk and John R. Hibbing 'Are Political Orientations Genetically Transmitted?' *American Political Science Review*, 99 (2005), 153–67.

*Political Interest and Turnout*

Another common explanation capturing variations in turnout rates is interest in politics.<sup>39</sup> The theoretical and empirical literature has identified a number of reasons for this. First, people with a high interest in politics are likely to possess more information about the political system. This lowers the cost of voting as such voters do not have to seek out information at election time. Secondly, Feddersen and Pesendorfer develop a game-theoretic model of voting showing that it can be optimal for uninformed voters to abstain from voting even if they care about the outcome of the election, as by abstaining they defer the decision to the informed voters who, by definition, should vote for the correct policy.<sup>40</sup> Matsusaka demonstrates how the decision to vote depends on how confident a voter feels about their choice – if voters believe their choice of party is correct then they derive a higher utility from voting.<sup>41</sup> In addition, individuals with a greater interest in politics may also derive greater psychic benefits from voting.

Two recent studies question the apparent causal relationship between political information and voter turnout. Both Larcinese and Dreyer Lassen demonstrate, using British and Danish data respectively, that political information is endogenous, whereby the decisions to vote and the decision to acquire political information are related.<sup>42</sup> These studies address this issue by estimating simultaneous equation models. This requires specifying, *a priori*, variables which determine political information and have no direct impact on voter turnout, and vice versa. The difficulty with this approach is that these *a priori* assumptions are often unconvincing, i.e. many of the characteristics that makes one acquire political information also makes them more likely to vote. While these studies deal with political information, a similar result may evolve from using political interest. Tilley, Sturgis and Allum find a uni-directional effect from political interest to political knowledge in Britain, whereby greater interest in politics leads to greater knowledge about political issues.<sup>43</sup> In this article we propose that political interest and voter turnout have some, although not all, common driving factors and, for this reason, we estimate the determinants of both outcomes simultaneously.

*Voter Turnout in Britain*

As the majority of the micro literature on political participation in Britain relies on data from the British Election Studies (BES), it has not been possible to examine issues such as cognitive ability and psychological traits. However, the richness of the BES with regard to political indicators, for example, attitudes towards parties, politicians and policies, has generated numerous studies of turnout. One of the most comprehensive to date, conducted by Clarke *et al.*, tested six alternative models of turnout (relative deprivation, social capital,

<sup>39</sup> Verba, Scholzman and Brady, *Voice and Equality*; Geraint Parry, George Moyser and Neil Day, *Political Participation and Democracy in Britain* (Cambridge: Cambridge University Press, 1992).

<sup>40</sup> Timothy J. Feddersen and Wolfgang Pesendorfer, 'The Swing Voter's Curse', *American Economic Review*, 86 (1996), 408–24.

<sup>41</sup> John G. Matsusaka, 'Explaining Voter Turnout Patterns: An Information Theory', *Public Choice*, 84 (1995), 91–117.

<sup>42</sup> Larcinese, 'Information Acquisition, Ideology and Turnout'; Lassen, 'The Effect of Information on Voter Turnout'.

<sup>43</sup> James R. Tilley, Patrick Sturgis and Nick Allum, 'Political Information and Motivation: A Case of Reciprocal Causality?' (paper presented at symposium on 'Perceptions preferences and rationalization: overcoming the problem of causal inference in the study of political behaviour', Nuffield College, Oxford, 2004).

civic voluntarism, cognitive mobilization, minimal rational choice and general incentives) using the 2001 BES.<sup>44</sup> They find that while no single model could wholly explain turnout in Britain, the general incentives model and the cognitive mobilization model dominated the others. Therefore, knowledge-based models perform better than resource-based models. Other studies, such as those of Pattie and Johnston, found that the closeness of the election and lack of perceived differences between the parties shaped turnout in the 1997 election.<sup>45</sup>

As turnout in Britain has been in decline in recent years, particular amongst younger people,<sup>46</sup> a number of initiatives including an 'e-voting' pilot study<sup>47</sup> and the introduction of compulsory citizenship education to the schools curriculum<sup>48</sup> have been initiated to halt or reverse this trend. British turnout studies are, therefore, finding new ground to help explain this phenomenon.

This article adds to both the British and international literature on voter turnout in a novel way by using longitudinal cohort data which allows us to consider psychological traits and cognitive ability for the first time. It also departs from the current literature by simultaneously modelling the joint determinants of turnout and political interest. This theoretical approach is based on the argument that political interest and turnout may be co-determined. While several studies have hinted at the endogeneity of both education and political interest in Britain, the NCDS data allow us to further investigate this view.<sup>49</sup>

#### DATA AND METHODOLOGY

##### *Data*

The analysis is based on the 1958 National Child Development Study (NCDS). This is a longitudinal study of all persons living in Great Britain who were born in the week 3–9 March 1958. The 1958 perinatal mortality survey has been followed by six subsequent waves (NCDS 1–6) at ages 7, 11, 16, 23, 33 and the most recent, at ages 41–42. NCDS 1–3 comprised interviews with the children, their parents, their schools and the reports of medical examiners. These data are an exceptionally rich source on child development from birth to early adolescence, child care, medical care, health, home environment, educational progress, parental involvement, cognitive and social growth, family relationships, etc. NCDS 4–6 is based largely on interviews with the cohort member and his/her partner. They document economic activity, income, training and housing, as well as the development of the cohort member's own family.

<sup>44</sup> Clarke *et al.*, *Political Choice in Britain*.

<sup>45</sup> Pattie and Johnston, 'A Low Turnout Landslide'.

<sup>46</sup> Andrew Russell, Edward Fieldhouse, Virinder Kalra and Kingsley Purdam, *Young People and Voter Engagement in Britain* (London: Electoral Commission, 2002).

<sup>47</sup> Pippa Norris, 'Will New Technology Boost Turnout? Evaluating Experiments in UK Local Elections', in Norbert Kersting and Harald Baldersheim, eds, *Electronic Voting and Democracy: A Comparative Analysis* (London: Palgrave, 2004), pp. 183–225.

<sup>48</sup> David Kerr, 'England's Teenagers Fail the Patriotic Test: The Lessons from England's Participation in the IEA Civic Education Study' (Political and Citizenship Education: International Perspectives), *Oxford Studies in Comparative Education*, 14 (2005), 29–47.

<sup>49</sup> Milligan, Moretti and Oreopoulos, 'Does Education Improve Citizenship?'; Larcinese, 'Information Acquisition, Ideology and Turnout'.

The last three waves collected information on the political behaviour of the cohort, including past electoral participation, party alignment, vote choice and voting intentions. The fourth follow-up, conducted in 1981 when the cohort were aged 23, collected information on the 1979 general election; the fifth follow-up conducted in 1991 when the cohort were 33, collected information on the 1987 general election; and finally the 1999/2000 follow-up, conducted when the cohort were aged 41/42, collected information on the 1997 general election. The primary variable of interest in this study is voter turnout in the 1997 election and it is based on responses to the following question: 'Did you vote in the last General Election in May 1997?'<sup>50</sup> In total, 79.6 per cent of respondents (4,668) stated they did vote in the election. This is somewhat above the national aggregate turnout rate of 71 per cent. This difference is somewhat less than is frequently found in studies of individual turnout where participation is generally overestimated. Turnout may be overstated in survey data as respondents may feel embarrassed about not fulfilling their civic duty. In addition, abstainers are less likely than voters to participate in surveys.<sup>51</sup> The low level of misreporting in our sample is in line with Swaddle and Heath's findings that the 25–44 age group are less likely to misreport compared to other age groups.<sup>52</sup> However, since our sample is a particular age cohort (39 at the time of the election), there is no guarantee that it will reflect aggregate turnout. In addition, the results may not generalize to other groups of the population. The data also suggest the cohort are somewhat consistent in their electoral participation, with 79.7 per cent voting in the 1987 election.

Note that like other longitudinal cohort studies the NCDS is subject to attrition. Of the original 17,416 cases observed in wave 1 (at birth) only 10,979 of these remain in wave 6 (age 42). However, attrition is relatively low once the cohort reach voting age, falling from 12,044 at age 23 to 10,986 at age 33 and 10,979 at age 42. Hawkes and Plewis find that the dropout rate within the NCDS is higher for males, those with low educational attainment and less stable employment patterns and those living in disadvantaged circumstances.<sup>53</sup> As some of these characteristics also typify non-voters it is possible that the type of people who have dropped out of the survey are also the type of people who do not turn out to vote. While it is possible that our results may be subject to attrition bias, a number of studies have noted that the representative nature of the NCDS has been maintained over time.<sup>54</sup>

A number of explanatory variables are included in the analysis, some of which are standard in the literature, i.e. sex, education and dummy variables for whether the

<sup>50</sup> While the NCDS dataset contains information on the voting behaviour of the cohort over time, we focus on the 1997 British general election as it experienced the lowest turnout in the post-war period of 71 per cent (turnout continued to fall in the 2001 election where only 59.4 per cent of the electorate voted). British electoral participation until recent years has been high compared to other advanced democracies, according to Harold D. Clarke, David Sanders, Marianne C. Stewart and Paul F. Whiteley, 'Britain (Not) at the Polls, 2001', *Political Science & Politics*, 36 (2003), 59–64, average turnout in Britain between 1945 until 1997 has been 76 per cent.

<sup>51</sup> Anthony Heath and Brigit Taylor, 'New Sources of Abstention?' in Geoffrey Evans and Pippa Norris, eds, *Critical Elections: British Parties and Voters in Long-Term Perspective* (London: Sage, 1999), pp. 165–80.

<sup>52</sup> Kevin Swaddle and Anthony Heath, 'Official and Reported Turnout in the British General Election of 1987', *British Journal of Political Science*, 19 (1989), 537–51.

<sup>53</sup> Denise Hawkes and Ian Plewis, 'Modelling Non-response in the National Child Development Study', *Journal of the Royal Statistical Society Series A*, 169 (2006), 479–91.

<sup>54</sup> E. Ferri, *Life at 33: The Fifth Follow-Up of the National Child Development Study* (London: National Children's Bureau, 1993).

TABLE 1 *Descriptive Statistics*

	Mean	St. Dev
Turnout in 1997 British General Election	0.796	0.403
Cognitive Ability (age 11)	0.350	1.690
Maths Ability (age 11)	0.178	0.972
Comprehension Ability (age 11)	0.153	0.946
Verbal Ability (age 11)	0.191	0.940
Non-Verbal Ability (age 11)	0.178	0.938
Impulsive (age 16)	2.734	0.869
Even-Tempered (age 16)	3.633	1.176
Aggressive (age 16)	2.916	0.707
Rigid (age 16)	2.732	0.786
Withdrawn (age 16)	2.324	1.028
Hardworking (age 16)	3.382	1.195
Interest in Politics	0.430	0.495
Civic Duty	0.194	0.396
Male	0.474	0.499
Age Left Education	17.186	1.898
Stayed in Education after 16	0.408	0.491
Married	0.735	0.441
Self-Employed	0.132	0.338
Union Member	0.294	0.456
Parental Social Class at birth	3.094	1.326
Observations	4,668	

individual is married, a trade-union member or self employed.<sup>55</sup> Two separate measures of education are included. The first is the age at which the respondent left full-time education. Table 1, which provides the descriptive statistics of the data, shows that the average school-leaving age was 17. The second educational measure is a dummy variable indicating whether the respondent stayed on beyond the minimum school leaving age of 16 – only about 40 per cent did in this cohort. As previous research has identified a relationship between turnout and the voter’s social background in Britain, we also include a categorical variable representing parental social class in 1958 (i.e. at birth).<sup>56</sup> While we could have used this to generate a set of dummy variables, we found that treating it as a continuous variable was satisfactory in that the estimated parameters of interest were

<sup>55</sup> Another common factor influencing voter turnout is party identification. A number of studies have found that individuals with strong partisan attachments are more likely to vote compared to those with weak partisan attachments (see J. M. Sabucedo and D. Cramer, ‘Sociological and Psychological Predictors of Voting in Great Britain’, *Journal of Social Psychology*, 13 (1991), 647–54; Mark N. Franklin, ‘Electoral Participation’, in Laurence LeDuc, Richard G. Niemi and Pippa Norris, eds, *Comparing Democracies: Elections and Voting in Global Perspective* (London: Sage, 1996). However, as a variable capturing strength of partisan attachment is not included in the NCDS survey we cannot include it in the empirical analysis.

<sup>56</sup> Parry, Moyser and Day, *Political Participation and Democracy in Britain*; Ivor Crewe, ‘Electoral Participation’, in David Butler, Howard R. Penniman and Austin Ranney, eds, *Democracy at the Polls: A Comparative Study of Competitive National Elections* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1981), pp. 216–63.

invariant to this choice.<sup>57</sup> In addition, a set of eleven regional dummies at the level of standard economic region is included.<sup>58</sup>

We also include a measure of the respondent's interest in politics. It is based on responses to the following question: 'How interested would you say you are in politics?' Table 1 shows that 43 per cent of our sample stated they were interested in politics. To capture the respondent's sense of civic duty we include a dummy variable indicating whether they are a member of one of the following organizations: political party, environmental charity/voluntary groups, other charity/voluntary groups, women's group, townswomen guild/women's institute, parents/school organization, tenants/residents association. Overall, only 19 per cent of our sample is a member of a voluntary organization/group.<sup>59</sup> We also incorporate a number of variables which are not standard in the turnout literature; these include measures of cognitive ability and personality.

The measure of cognitive ability is based on the first principal component from four ability measures: mathematics, comprehension, verbal and non-verbal abilities. In the estimated models, all four individual ability measures and the aggregate measure are standardized to have a mean of 0 and a standard deviation of 1. The NCDS includes six personality variables which are measured on a scale of 1 to 5, whereby a value of 5 corresponds to the highest level of the characteristic given. The respondents' teacher made these evaluations when they were 16 years old.

### *Methods*

The statistical methods used in this article are, for the most part, standard in the literature. The initial estimates reported in Table 2 (see next section) use probit to model the individual's probability of voting. Rather than reporting the probit coefficients, which are only informative about the sign and the effect of the variable, the tables report the marginal effects: To recapitulate, in a probit it is assumed that the probability of a 'success' ( $y = 1$ ) is:

$$\Pr(y = 1) = F(\beta X), \quad (1)$$

where  $F$  is the cumulative normal distribution and  $\beta$  is a 1 by  $k$  vector of the parameters to be estimated and  $X$  is a matrix of  $n$  observations on  $k$  variables (including a constant).<sup>60</sup> The tables show the estimated marginal effect i.e. how the probability of turning out to vote changes with a unit change in the independent variables.

The second set of results estimate a bivariate probit model, i.e. two simultaneous probits assuming the disturbance terms to be bivariate normally distributed. The two outcomes are turnout and whether respondents report being interested in politics. One can test for

<sup>57</sup> The parental class variable is based on seven categories: Professional, Intermediate, Skilled non-manual, Skilled manual, Semi-skilled non-manual, Semi-skilled manual and Unskilled manual. The original variable was recoded such that higher values represent a higher social class. Note that this scale does not separately report the self-employed.

<sup>58</sup> While the literature on party choice in Britain often explicitly examines regional effects (e.g. Dorren McMahon, Anthony Heath Martin Harrop and John Curtice, 'The Electoral Consequences of North-South Migration', *British Journal of Political Science*, 22 (1992), 419-43), due to the historical dominance of certain parties in particular regions, in this article we abstract from this issue and hence do not report the coefficients on the regional dummies.

<sup>59</sup> We use this measure as a proxy for civic duty as the more standard measures of civic duty, which typically include attitudes towards voting, are not available.

<sup>60</sup> Using the 'dprobit' routine in STATA 9.

whether the disturbance terms are correlated processes. The sign of the correlation coefficient indicates whether, conditional on observables, unobserved heterogeneity is associated with respondents being more likely to have the same or different outcomes. As with the first set of results, we report marginal effects.

## RESULTS

Table 2 presents a sequence of models estimating the determinants of voter turnout. The first column shows a fairly conventional model of turnout focusing on educational and demographic determinants, in addition to measures of civic duty and political interest. The former has a large and well-determined coefficient: an individual who reports an interest in politics is about 18 per cent more likely to vote than otherwise. This is a multiple of any of the other estimated coefficients and is consistent with previous work by Sabucedo and Cramer and by Clarke *et al.*, who note the importance of political interest for voter turnout in Britain.<sup>61</sup> Civic duty also has positive and significant impact, such that being a member of a voluntary organization/group increases the probability of voting by 5.5 per cent. Clarke *et al.* and also Butler and Stokes find that civic duty is one of the most powerful predictors of voting in Britain.<sup>62</sup>

Contrary to some previous British studies, we find that education does have an impact on turnout and that its effect is non-linear: staying on beyond the minimum school leaving age increases turnout by 3 per cent. Each additional year of education increases the probability of voting by just 0.3 per cent, that is, the marginal effect of education is less than the average effect. Typically, turnout models only include one educational measure, so they fail to capture this non-linear effect.

Being married increases the probability of voting also, by 6.1 per cent. Married individuals may be more likely to vote if they perceive they have a greater stake in their community's future, for example, if they have children.<sup>63</sup> Alternatively, it could reflect unobserved heterogeneity: the type of people who get married are also the type of people who vote, for example, those who have higher levels of commitment to others or empathy. In addition, being male reduces the probability of voting by about 4 per cent, therefore confirming previous research which finds a gender gap in turnout. Pattie and Johnston note that since the 1979 election, women are more likely to vote than men in Britain, though their analysis of the 1997 election using the British Election Survey does not confirm this hypothesis.<sup>64</sup>

This model also replicates the standard finding that trade-union membership increases the probability of voting. Union members are typically more politicized. More specifically, the trade-union movement has close connections with the Labour party. Since the 1997 election followed eighteen years of Conservative government, which had been unsympathetic to organized labour, it is not surprising that union members turned out in numbers, being almost 5 per cent more likely to vote. Self-employed workers are less likely to vote since there is a higher cost to voting – the opportunity cost of their time. While

<sup>61</sup> Sabucedo and Cramer, 'Sociological and Psychological Predictors of Voting in Great Britain'; Clarke, Sanders, Stewart and Whiteley, 'Britain (Not) at the Polls'.

<sup>62</sup> Clarke, Sanders, Stewart and Whiteley, 'Britain (Not) at the Polls'; David Butler and Donald E. Stokes, *Political Change in Britain* (New York: St Martin's Press, College edition, 1971).

<sup>63</sup> A variable capturing whether the respondent has children was also included in the initial regression specification but, as it failed to be statistically significant, it was excluded from the final analysis.

<sup>64</sup> Pattie and Johnston, 'A Low Turnout Landslide'.

TABLE 2 *Determinants of Turnout in the 1997 British General Election*

	(1)	(2)	(3)	(4)
Cognitive Ability (age 11)	–	0.012*	0.021***	–
	–	(0.007)	(0.007)	–
Maths Ability (age 11)	–	–	–	0.009
	–	–	–	(0.011)
Comprehension Ability (age 11)	–	–	–	0.024**
	–	–	–	(0.010)
Verbal Ability (age 11)	–	–	–	–0.005
	–	–	–	(0.012)
Non-Verbal Ability (age 11)	–	–	–	–0.002
	–	–	–	(0.010)
Impulsive (age 16)	–	–0.007	–0.008	–0.007
	–	(0.008)	(0.008)	(0.008)
Even-Tempered (age 16)	–	0.011**	0.012*	0.012*
	–	(0.006)	(0.006)	(0.006)
Aggressive (age 16)	–	0.014	0.020**	0.019**
	–	(0.009)	(0.009)	(0.009)
Rigid (age 16)	–	–0.006	–0.009	–0.009
	–	(0.008)	(0.008)	(0.008)
Withdrawn (age 16)	–	0.005	0.004	0.004
	–	(0.007)	(0.007)	(0.007)
Hardworking (age 16)	–	0.016***	0.018***	0.017***
	–	(0.006)	(0.006)	(0.006)
Interest in Politics	0.181***	0.177***	–	–
	(0.011)	(0.011)	–	–
Civic Duty	0.055***	0.048***	0.071***	0.070***
	(0.015)	(0.015)	(0.014)	(0.014)
Male	–0.043***	–0.041***	–0.009	–0.013
	(0.012)	(0.012)	(0.012)	(0.013)
Age Left Education	0.013**	0.007	0.009	0.008
	(0.005)	(0.005)	(0.006)	(0.006)
Stayed in Education after 16	0.031*	0.018	0.031*	0.029
	(0.018)	(0.019)	(0.019)	(0.019)
Married	0.061***	0.056***	0.055***	0.055***
	(0.014)	(0.014)	(0.014)	(0.014)
Self-Employed	–0.047**	–0.047**	–0.034*	–0.035*
	(0.019)	(0.019)	(0.019)	(0.019)
Union Member	0.046***	0.045***	0.055***	0.055***
	(0.012)	(0.012)	(0.013)	(0.013)
Parental Social Class at birth	0.009**	0.009*	0.009**	0.009*
	(0.004)	(0.005)	(0.005)	(0.005)
Regions	Yes	Yes	Yes	Yes
Pseudo $R^2$	0.094	0.099	0.053	0.054
Observations	4,668	4,668	4,668	4,668

Note: Marginal effects and standard errors (in parentheses) reported. Significance levels: \*\*\*1%, \*\*5%, \*10%.

the measure of parental social class is simple, it shows that those from higher socio-economic backgrounds are slightly more likely to turn out. This is in line with the findings of Crewe, Särilvik and Alt and of Crewe, who find that the middle class show higher participation rates than lower socio-economic groups.<sup>65</sup>

The second specification in column two augments Model 1 by adding six personality measures and aggregate cognitive ability. Cognitive ability has a weakly significant effect on turnout; a 1 standard deviation increase in ability increases the probability of voting by 1.2 per cent. Of the personality measures, only two are statistically significant. Individuals who are hardworking (as opposed to lazy) and who are even-tempered (as opposed to moody) are a little over 1 per cent more likely to vote. One would expect that individuals with a predisposition towards laziness are less likely to vote than hardworking individuals since voting requires effort. With reference to the 'moody/even-tempered' variable, it is not surprising that moody people are less likely to vote since they are less likely to engage in normal socially acceptable behaviour, such as voting, and perhaps less likely to be altruistic. The only related finding in this area we are aware of is by Caprara *et al.*, who find that emotional stability has no impact on support for political parties.<sup>66</sup>

Including the personality and cognitive ability measures in Model 2 significantly reduces the size of the two education coefficients. While both educational measures fail to reach conventional levels of statistical significance, they are jointly statistically significant ( $p$  value = 0.02). One might have expected that the reduced education effect is due to the inclusion of cognitive ability but, by including cognitive ability without the personality variables and vice versa, it is clear that both the personality variables and the cognitive ability measure are driving this effect. The remaining variables do not greatly differ from Model 1.

As previously discussed, the positive association between political interest and turnout is unlikely to be causal as they are reflections of the same underlying construct. In short, we would argue that the relationship between political interest and turnout in Models 1 and 2 is largely non-causal. For this reason, the political interest variable is excluded in Model 3. This specification generates several notable differences from the previous model. First, the impact of cognitive ability has increased and is now significant at the 1 per cent level. In effect the impact of an exogenous variable (ability) was being swamped by the inclusion of a variable which is correlated with it but is correlated with the outcome of interest (turnout). We demonstrate this later in Table 3.

The exclusion of political interest also has an impact on the personality measures. While the hardworking and even-tempered measures remain much the same, there is now a positive and significant relationship between the aggression variable and turnout. Since the variable is on a scale of 1 to 5, this implies that the most aggressive individual is roughly 8 per cent ( $4 \times 0.02$ ) more likely to vote than the least aggressive individual.

That aggression matters would come as no surprise to some: for Freud, aggression and sexual desire were the two fundamental driving forces in humans, though what this predicts for turnout is unclear. More recently Lorenz emphasized the biological bias of human aggression as being one of several instincts central to the survival of the species.<sup>67</sup> Whatever the underlying mechanism for aggression is, it seems very plausible that

<sup>65</sup> Ivor Crewe, Bo Särilvik and Jim Alt, 'Partisan Dealignment in Britain 1964–1974', *British Journal of Political Science*, 7 (1977), 129–90; Crewe, 'Electoral Participation'.

<sup>66</sup> Caprara, Barbarnelli and Zimbardo, 'Personality Profiles and Political Parties'.

<sup>67</sup> Konrad Lorenz, *On Aggression* (San Diego, Calif.: Harcourt Brace, 1963).

aggressive people are more likely to vote since it is one route to getting one's own way. To invert Clausewitz's famous dictum, 'politics is warfare by other means'. Aggressive people are also more likely to express themselves if they are less inhibited about revealing their preferences.

The other coefficients in Model 3 remain largely unchanged with the exception of Male, which is no longer significant. Finally, Model 4 replicates the previous specification, the only difference being that the overall ability measure is replaced by its individual components in order to determine which specific abilities are driving the result. It is clear that the ability effect is driven by comprehension ability. This differs from existing studies which suggest that it is verbal ability that matters, although these studies do not include other measures of ability.<sup>68</sup> Since the hypothesis is that it is an individual's ability to process political information that drives the turnout decision, our finding is as one would expect. All the other coefficients are similar to the previous specification.

The argument for excluding political interest from the turnout model hinges on the hypothesis that the two variables are jointly determined and that similar factors, both observed and unobserved, determine both. We pursue this argument by estimating a probit model in which the disturbance terms are distributed bivariate normal. This model allows for the fact that people with high levels of political interest are also more likely to vote. We use the same explanatory variables as in the last column of Table 2 for both outcomes, although this is not required.

The estimates are presented in Table 3. Note that the significant correlation coefficient reported at the bottom of the table suggests that the decision to estimate turnout and interest simultaneously is justified. The large and well-determined correlation coefficient ( $\rho = 0.415$ ) indicates that, conditional on observables, people who have an interest in politics are more likely to vote, and vice versa. The turnout equation is very similar to the last column of Table 2, which implies that despite the cross-equation correlation, estimating the model as a 'stand alone' does not make a huge difference. While the determinants of both outcomes are similar, there are also some notable differences. Comprehension is the only ability measure which has a significant impact on turnout. However, interest in politics is affected by both comprehension ability, such that a 1 standard deviation increase in ability increases the probability of being interested in politics by about 7 per cent, and non-verbal ability, which has a negative impact on political interest, although it is only significant at the 10 per cent level.

For the personality measures, we find that aggressive individuals are more likely to have an interest in politics and turn out to vote. As stated above, aggressive people are not afraid of expressing their views, even if their opinions deviate from others. Such factors should therefore encourage them to seek out political information and to express their preferences at election time. By contrast, being hardworking, as opposed to lazy, only increases the probability of voting and has no impact on being interested in politics. We also find that being even-tempered, as opposed to moody, has a modest impact on voter turnout, while having no statistical impact on interest. In addition, being rigid, as opposed to flexible, decreases the probability of being interested in politics, while having no impact on turnout. This makes intuitive sense if one assumes that the flexible/rigid measure is correlated with the Big Five personality measure 'Openness to Experience', which gauges an individual's level of curiosity. Therefore, if individuals are open to new experiences and curious about

<sup>68</sup> Verba, Schlozman and Brady, *Voice and Equality*; Nie, Junn and Stehlik-Barry, *Education and Democratic Citizenship in America*; Neuman, *The Paradox of Mass Politics*.

TABLE 3 *Bivariate Probit Determinants of Turnout and Political Interest*

	Turnout	Interest in politics
Maths Ability (age 11)	0.010 (0.011)	0.006 (0.013)
Comprehension Ability (age 11)	0.023** (0.010)	0.071*** (0.012)
Verbal Ability (age 11)	-0.007 (0.011)	0.011 (0.015)
Non-Verbal Ability (age 11)	-0.002 (0.010)	-0.025* (0.013)
Impulsive (age 16)	-0.007 (0.008)	-0.004 (0.010)
Even-Tempered (age 16)	0.011* (0.006)	0.000 (0.008)
Aggressive (age 16)	0.019** (0.009)	0.035*** (0.013)
Rigid (age 16)	-0.009 (0.008)	-0.018* (0.011)
Withdrawn (age 16)	0.005 (0.007)	0.001 (0.009)
Hardworking (age 16)	0.017*** (0.006)	0.013 (0.008)
Civic Duty	0.071*** (0.014)	0.156*** (0.020)
Male	-0.015 (0.013)	0.176*** (0.016)
Age Left Education	0.009 (0.006)	0.008 (0.006)
Stayed in education after 16	0.028 (0.019)	0.072*** (0.024)
Married	0.054*** (0.014)	-0.012 (0.017)
Self-Employed	-0.035* (0.019)	0.066*** (0.023)
Union Member	0.057*** (0.013)	0.079*** (0.017)
Parental Social Class at birth	0.009** (0.005)	0.007 (0.006)
Regions	Yes	Yes
$\rho$		0.415***
Standard error		0.025
Observations		4,668

Note: Marginal effects and standard errors (in parentheses) reported. Significance levels: \*\*\*1%, \*\*5%, \*10%.

the world, then they are likely to be interested in politics; however, this curiosity may not be enough to induce them turn out to vote.

Civic duty also has an impact on both turnout and political interest; its effect however, is greater on political interest – members of political/voluntary organizations are 16 per cent more likely to have an interest in politics than those who are not members, while such individuals are only 7 per cent more likely to vote. Engaging in social activities with other

socially orientated people may lead to group discussions concerning society, the environment and also politics, thereby further enhancing political interest. Being members of such groups may also encourage electoral participation through peer effects.<sup>69</sup>

Several of the socio-economic factors also play a role in determining political interest and turnout. More specifically, males have a greater interest in politics than females; being male increases interest by 18 per cent. The education results are largely unchanged for turnout (while neither of the variables are individually significant, they are jointly significant). Such results show that education is not just a proxy for underlying cognitive ability, but it also has an independent effect on turnout. Being married increases the probability of voting, while having no impact on political interest. Being self-employed decreases the probability of voting, while it increases the probability of being interested in politics, hence confirming the opportunity cost of time argument discussed earlier. Finally, being a member of a trade union both increases the probability of voting and being interested in politics. While coming from a higher socio-economic background induces participation, it has no impact on political interest.

## CONCLUSION

This article contributes to the turnout literature in several novel ways. Following recent studies that discuss the potential endogeneity of education and turnout, on the one hand, and political interest and turnout, on the other, we contribute to this debate by utilizing a rich longitudinal dataset which allows us to include a number of key psychological and cognitive ability factors that were previously absent in the literature. Overall, we find that these factors measured prior to voting age influence voting decisions over twenty years later. These results shed some light on a number of key relationships identified in the literature.

It replicates previous studies which find that, contrary to the American results, the relationship between education and voter turnout in Britain is weak. While education plays a small role in determining turnout in the naïve model, cognitive ability and personality play a far greater role. This suggests, on the one hand, that interventions which solely focus on improving educational attainment in general will have little effect on increasing electoral participation.

On the other hand, cognitive ability estimated at age 11 had a significant impact on voter turnout in the 1997 election. Therefore, regardless of education, high ability individuals possess the skills which enable them to engage in civic participation. While several studies have investigated the link between turnout and ability, their reliance on contemporaneous measures makes it difficult to disentangle this independent ability effect. That cognitive ability is a better predictor of future turnout than education implies that the type of education being given in Britain does not fulfil the role often assigned to education of an instigator of social responsibility and civic values. Therefore, these results suggest that educational reforms designed to improve cognitive ability, rather than general educational attainment, would have a knock-on effect of improving democratic participation. However, this intervention would only be successful if it were to concentrate on improving

<sup>69</sup> See Stephen Knack, 'Civic Norms, Social Sanctions, and Voter Turnout', *Rationality and Society*, 4 (1992), 133–56; Stephen Knack and Marta E. Kropf, 'For Shame! The Effect of Community Cooperative Context on the Probability of Voting', *Political Psychology*, 19 (1998), 585–99.

comprehension ability, as we find that it is the ability to read, interpret and understand information that drives the relationship. This contradicts previous studies which found that verbal ability was the primary determinant, but as those studies did not include alternative ability measures and relied on current measures, it may be that verbal ability could be seen as a proxy for comprehension skills.

The notion that improving the educational level alone does not contribute to electoral decisions has already been recognized. In a bid to address the declining participation rates among young people in Britain, citizenship education became a compulsory part of the curriculum in 2002.<sup>70</sup>

This article contributes to the political psychology literature by presenting the first study of voter turnout and personality traits. As personality measured at age 16 influences outcomes later in life, this provides strong evidence that psychological factors can have a major impact on political behaviour. We find that those with hardworking, even-tempered and aggressive personalities are more likely to vote than those with, respectively, lazy, moody and timid personalities. In relation to policy implications, as personality is much less malleable than cognitive ability, it would be very difficult to increase electoral participation by targeting personality traits. A more successful strategy may involve changing attitudes towards voting.

While it is true that individuals who report a greater interest in politics are also more likely to vote, this article demonstrates that both political interest and turnout are driven by common characteristics, both observable and unobservable, which generate a correlation between the two and this vitiates the common practice of modelling the latter as depending on the former. We argue that it is better to include the original factors that drive both outcomes, rather than using one to explain the other. Therefore, an important implication of this article, which can easily be applied to standard cross-sectional studies, is to avoid including political interest as a regressor in turnout models. Alternatively, one could model both turnout and interest simultaneously and then maintain this approach if the model deems the two to be correlated.<sup>71</sup>

The results from the bivariate model show that the factors which influence the decision to vote and political interest are quite similar. Most of the coefficients in the political interest equation are larger than the corresponding coefficients in the turnout equation, suggesting that a characteristic, say union membership, may be sufficient to make one interested in politics (which is costless by itself) but not to vote (which requires effort). Therefore these results point to the existence of a class of individuals who are interested in politics but not sufficiently interested to induce them to vote given the fixed costs associated with voting.

Evidence provided in this article suggests that individual measures of personality and cognitive ability influence voting decisions. This implies that on-going and new surveys in this area could consider including psychological and ability instruments. Given the costs of administering large surveys, one should consider reducing the number of endogenous variables included, such as measures of political interest, and include more exogenous questions such as personality traits. These exogenous variables will reveal causal relationships, i.e. the true determinants of turnout, rather than correlations. Using such

<sup>70</sup> David Kerr, 'Promoting Active Citizenship in Schools and Communities in England: Emerging Lessons from Policy, Practice and Research', in Bart Maes, ed., *Different Faces of Citizenship Development of Citizenship Education in European Countries* (Brussels: CIDREE, 2005), pp. 93–125.

<sup>71</sup> This can be achieved by examining the correlation coefficient reported with the bivariate probit model.

exogenous measures offers us insights into the intrinsic motivations of voting and helps explain variations in voter turnout at an individual level.

This article also demonstrates the advantages of using birth cohort data, such as the NCDS, to study voting behaviour. Given that turnout in Britain is particularly low among the younger cohort and the evidence which suggests that young people appear disillusioned with politics even before they reach voting age,<sup>72</sup> having access to childhood and early adulthood factors which subsequently influence voting decisions is important in order to understand the dynamics of political socialization. Similar datasets are also available for younger cohorts, for example, the 1970 British Cohort Study (BCS) includes information on the voting behaviour of this younger cohort in the 1997 election and their future voting intentions. Therefore, there are alternative datasets available which could be utilized to examine these issues.

Another useful direction which could be taken is for political scientists to collaborate with psychologists. In particular, there may be psychological surveys that could be extended to include voting behaviour, or alternatively, the existing sources of British voting data, i.e. the British Election Studies, could be amended to include simple measures of cognitive ability that have been validated in the psychometric literature.

It may be unrealistic to assume, however, that the cross-sectional or panel data surveys currently used in this area will include such measures. One alternative, therefore, is to identify likely correlates of personality and ability. For example, one variable which is likely to be correlated with cognitive ability and which is readily available in current datasets is political sophistication. One could use such a variable as a proxy for cognitive ability.

In sum, this article stresses the importance of recognizing that both cognitive and non-cognitive factors can influence voting decisions and therefore efforts to measure these factors should be addressed in the literature.

<sup>72</sup> Russell, Fieldhouse, Kalra and Purdam, *Young People and Voter Engagement in Britain*.