A Framework for the Study of Personality and Political Behaviour

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Variance in how citizens interact with the political world constitutes one of many classes of individual difference. Understanding the antecedents of this variance is the central objective for students of political behaviour, and researchers draw on numerous factors in addressing this task. Unfortunately, one potentially vital factor, personality, has received only sporadic attention in recent decades. Neglect of personality was understandable for many years, as psychological research on personality failed to produce concise taxonomies applicable to the study of politics. As the present analysis demonstrates, however, this situation has changed. Research on personality has gained new footing with the emergence of a series of five-factor models, and these frameworks hold great potential for the study of political behaviour. This thesis is advanced in a two-part analysis. First, we outline how and why our understanding of citizen politics may be improved through application of five-factor models of personality. In doing so, we focus on the components of one specific taxonomy, the Big Five lexical model. Secondly, using three datasets, we explore the link between the Big Five personality factors and a wide array of political attitudes and behaviours. Results reveal that all facets of personality captured by the Big Five framework matter for citizen politics, and that personality effects operate on virtually all aspects of political behaviour. These findings demonstrate the insight that can emerge with further application of broad-scale models of personality.

Whether we think of people as people or as political actors, it is certain that people differ from one another in countless meaningful ways. Some people are liberal, others are conservative. Some are well informed, others are poorly informed. Some are tall, others short. People are talkative or quiet, kind or unkind, calm or tense. These differences matter for what we think and how we behave – effects that operate in the political realm, but also in the course of everyday life.

In research on politics we have done well in accounting for the significance of many forms of individual difference. For example, we are well versed in the impact of demographics and attitudinal predispositions. However, we have failed – and frankly, quite heroically – to offer a systematic account of the possible impact of variance in personality on political behaviour. The reason for this state of affairs is not that we expect personality to be irrelevant. To the contrary, the literature is rife with claims that personality is surely related to a host of political matters. Consistent with such assertions, political scientists have provided small bits of supporting evidence. From models on public opinion, tolerance, leadership styles, support for authoritarian regimes and so on, personality variables are regularly suggested and occasionally employed to explain why individuals and groups behave as they do.

Unfortunately, political science has not yet seen a comprehensive take on personality. When personality has been incorporated within empirical studies of politics, analysts

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typically have taken a piecemeal approach. We have lacked a functional framework for the study of human traits, and we have lacked access to corresponding data that would permit us to test the hypotheses emerging from such a framework. For many years, these deficiencies were understandable as they were traced to the extended absence of viable models of personality in the field of psychology. Although psychological research on personality was in disarray for a prolonged period, the past two decades have seen dramatic breakthroughs in the development and testing of a series of concise multi-faceted psychometric models. Here, we draw on one such model in making the case that students of politics have much to gain from renewed systematic attention to personality. Specifically, we offer psychology’s Big Five model as a broad-scale framework for the depiction of individual-level attributes, and then provide evidence regarding the function and value of this framework for understanding the operation of personality on political behaviour.

Our analysis begins with a two-part argument in which we initially outline the case for how and why, as a general matter, the study of politics may benefit from attention to personality, and we next describe the central features of the Big Five model along with the specific relevance of this framework for research on political behaviour. We then put our thesis to the test with data drawn from three surveys conducted in the United States. The possible impact of personality is examined with respect to a wide array of dependent variables, including multiple measures of political attitudes, behaviour and exposure to information.

PERSONALITY AND CITIZEN POLITICS

Research on mass politics seeks to identify the antecedents of citizens’ political attitudes and behaviours. Given this focus, a strategy that includes attention to personality, or ‘the psychology of individual differences’, holds enormous intuitive appeal. We, of course, are far from the first observers to note this point. Indeed, as Winter comments, ‘one of the central axioms of political psychology is that political structures and actions are shaped and channelled by people’s personalities’. But widespread recognition of a probable link between personality and political action has not produced a corresponding flurry of empirical research. Although numerous analysts have made effective use of theories of personality in studies of political behaviour, personality has hardly claimed a position comparable to those of core values or even demographic characteristics in models of mass politics. Inclusion of personality variables remains the exception, and use of broad-scale models of personality remains extraordinarily rare.

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2 Personality has long been subject to a great variety of definitions, and we have neither the need nor the means to specify a precise definition that will be satisfactory to all readers. Because, as we argue below, a level of consensus has emerged regarding models of personality, it is common among psychologists to employ broad, flexible definitions of personality, coupled with much more concrete operationalizations. We follow such a strategy here. That said, it should be clear that we are advocating a trait approach to the study of personality. Traits are individual differences that, within the individual, are highly stable across both time and situations. Our core thesis is that attention to traits via a comprehensive framework can bring substantial improvement to our understanding of the antecedents of political behaviour.

A great deal of research on elite politics has included detailed exploration of leaders’ personalities, but comparable efforts at the mass level have been more limited. The study of personality and mass politics was more common a generation ago than today, but even then applications focused primarily on a single line of inquiry, the link between personality and adherence to democratic values. An early prominent work of this genre was the Adorno et al. research on the authoritarian personality, followed by McClosky’s studies of ideology, Sniderman’s use of the McClosky data to consider the political significance of variance in self esteem, and the Sullivan, Piereson and Marcus examination of personality and political tolerance. Attention to personality was much rarer in studies of other aspects of political behaviour, and what research there was typically appeared outside of mainstream political science outlets.

In more recent times, research on mass politics often has included variables that relate at least implicitly to personality, such as internal efficacy and need for cognition, but again, explicit attention to personality has been infrequent. Beyond the continued efforts of Marcus et al. in the area of tolerance, much of the recent research on personality and mass politics has been conducted by analysts from fields other than political science.

The dearth of attention to personality by students of mass politics is puzzling. When personality has been included in research on political behaviour, those efforts

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9 See, for example, P. H. Mussen and A. B. Wyszynski, ‘Personality and Political Participation’, Human Relations, 5 (1952), 65–82.


12 Greenstein notes that the field of personality and politics has seemingly had more detractors than practitioners, a situation Greenstein attributes in part to the challenges associated with systematic inquiry in this area. See Fred I. Greenstein, ‘Can Personality and Politics Be Studied Systematically?’ Political Psychology, 13 (1992), 105–28.
typically have yielded significant effects. Nonetheless, the personality bandwagon abounds with empty seats. Further, among research that incorporates personality into models of political behaviour, two characteristics are especially unfortunate. First, although the insights in work on tolerance and democratic values have been noteworthy, it is troubling that little research on personality and mass politics has been conducted outside of these areas. Because differences in personality drive countless aspects of human activity, the political significance of personality may extend well beyond the issue of tolerance. Indeed, our a priori expectation is that variance in personality may be linked to virtually all aspects of political behaviour. Secondly, the use of comprehensive models of personality has been rare; when political scientists have introduced measures of personality, they most often have done so with focus on no more than one or two attributes. This imposes considerable limitation on the ability to generalize findings and to compare work across studies. This concern echoes one voiced by Sniderman over thirty years ago.\footnote{Sniderman, \textit{Personality and Democratic Politics}, p. 16.}

(T)he field of personality and politics has acquired a jerry-built appearance. Observation suggests that political scientists inspect the array of psychological hypotheses, personality theories, and experimental findings like single-minded customers at a bargain counter, each bent on obtaining whatever suits his or her immediate purpose. The upshot is a mélange of ideas, borrowed from disparate sources, sometimes tested but more often intuitive and anecdotal in character.

The jerry-built quality Sniderman describes traces to two causes. First, as Sniderman himself noted, it was assumed that attention to the whole of an individual’s personality was impractical.\footnote{Sniderman, \textit{Personality and Democratic Politics}, p. 11.} As anyone who has designed a survey is aware, difficult choices must be made regarding which items to include and which to omit. Given this reality, use of an extensive personality battery reasonably might be seen as out of the question. But, secondly, even if political scientists had desired to view personality more broadly, guidance from the field of psychology was lacking until relatively recently. As Digman explained, psychological research on personality stalled in the 1960s and 1970s, and it was not until the mid to late 1980s that the current renaissance was well underway.\footnote{John M. Digman, ‘Personality Structure: Emergence of the Five-Factor Model’, \textit{Annual Review of Psychology}, 41 (1990), 417–40. For further discussion of historical developments in trait psychology, see Lewis R. Goldberg, ‘The Structure of Phenotypic Personality Traits’, \textit{American Psychologist}, 48 (1993), 26–34; and Oliver P. John and Sanjay Srivastava, ‘The Big Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives’, in Lawrence A. Pervin and Oliver P. John, eds, \textit{Handbook of Personality: Theory and Research}, 2nd edn (New York: Guilford Press, 1999), pp. 102–38.} There often is a lag time of ten or more years before innovations in other fields affect applied research in political science, and thus it is of little surprise that few students of politics have moved beyond the piecemeal approach bemoaned by Sniderman in 1975.

The impracticality of data acquisition and the absence of broad-scale models contribute to the scattershot nature of much of the research on personality and politics, but a lack of appropriate theory does not. Rather, consensus among psychologists provides a strong theoretical recommendation against the singling out of particular attributes, and instead holds that study of variance in personality should take a comprehensive approach. Winter
applies this logic in developing a guideline for analysts concerned with personality and political behaviour:\textsuperscript{16}

(I)f personality is understood as comprising different (and independent) elements, then it follows that the fullest assessments of individual and collective personality, and the most accurate predictions from personality to political behavior, will be made using combinations of variables, preferably variables drawn from different personality elements.

We concur quite strongly with Winter on this point. Moreover, it is our belief that the matters of impracticality and model unavailability need no longer preclude investigations of the sort Winter envisions. Research in psychology has established that a new generation of models offers holistic, systematic frameworks for the study of personality. Drawing on this research, we contend that these models represent personality in a manner well suited for inquiry regarding political behaviour, and that the practical demands associated with acquisition of the needed data are far from insurmountable. Use of such frameworks promises to contribute to the theoretical depth and explanatory power of individual studies, and to foster cumulative inquiry by facilitating improved communication between studies.

Links between personality and political behaviour should exist in two general forms. First, variance in personality may correspond directly to variance in political behaviour. Much as voting behaviour, information acquisition and group membership vary with such individual-level characteristics as education, age and strength of partisan identification, political attitudes and behaviour are expected to vary systematically as a function of differences in personality. The aforementioned research on political tolerance, with its finding of a strong link between dogmatism and intolerance, exemplifies this sort of direct effect.\textsuperscript{17} Below, we conduct a sweeping search for more relationships of this type, as it is our expectation that there will be direct connections between personality and virtually all variables of interest to students of political behaviour.

Secondly, variance in personality may produce indirect, or situational, effects on political behaviour. Recent research in psychology demonstrates an interplay between personality and situation (see, for example, Mischel and Shoda),\textsuperscript{18} and, consistent with this view, the newest wave of research in political science on authoritarianism establishes that the impact of that trait on political judgements is conditional on other factors such as the level of situational threat.\textsuperscript{19} Many more conditional effects of personality of this sort are easily imagined. For instance, the formation of political opinions may be unaffected by personality in high-information environments, whereas personality may come strongly into play in low-information settings. Although we test only for direct effects below, full attention to the possible political significance of differences in traits will require expanded exploration of possible indirect effects. In companion research to the present study, we have begun to conduct such inquiries. In one preliminary effort, for instance, results suggest that any demobilizing impact of exposure to negative campaign advertisements varies substantially in magnitude as a function of the receiver’s traits.


\textsuperscript{17} For example, Sullivan, Piereson and Marcus, Political Tolerance and American Democracy.


THE BIG FIVE MODEL

The fundamental logistical challenge for students of personality stems from the fact that thousands of personality attributes have been identified. Given this landscape, and barring some ordering mechanism, it was inevitable that research on traits would lack the progressive character ideally associated with scientific inquiry. Psychologists faced this situation for years. As John and Srivastava noted, ‘systematic accumulation of findings and the communication among researchers has become difficult amidst the Babel of concepts and scales.’

For students of personality, the critical breakthrough came with the realization that a viable taxonomy could be developed, a framework whereby attributes could be represented comprehensively yet parsimoniously using a limited number of dimensions. Although the roots of this, the Big Five approach, date back several decades, prolonged discussion was required before any level of consensus emerged regarding the number of dimensions to be included in a taxonomy of personality, and the content and labeling of those dimensions. Lingering pockets of disagreement continue on these and other points, but

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21 For the most part, our references will be to the Big Five model rather than to the highly similar five-factor model. The models are consistent both in the number of factors they include and in the essential content of each dimension. Although the leading advocates of these approaches see important distinctions between them, we share the opinion of other observers that the differences are relatively slight. On this point, see John M. Digman, ‘The Curious History of the Five-Factor Model’, in Jerry S. Wiggins, ed., The Five-Factor Model of Personality: Theoretical Perspectives (New York: Guilford Press, 1996), pp. 1–20. In our view, the difference between the two models is more a matter of practice than theory in that the key distinction between the two approaches is in how the data are gathered. The Big Five is a lexical model, with focus on adjectives, whereas data for the five-factor model are gathered using instruments in which respondents report on behaviours. The data we examine below are lexical, and thus our empirical strategy is most consistent with work on the Big Five. However, we see no necessary theoretical or substantive discrepancies between our analyses and those transpiring under the moniker of the five-factor model. An enormous wealth of research has been produced in these areas by a large field of scholars, but the central practitioners of the Big Five and five-factor approaches, respectively, are Goldberg, and Costa and McCrae. See Goldberg, ‘The Structure of Phenotypic Personality Traits’; Lewis R. Goldberg, ‘The Development of Markers for the Big-Five Factor Structure’, Psychological Assessment, 4 (1992), 26–42; Lewis R. Goldberg, ‘An Alternative “Description of Personality”: The Big-Five Factor Structure’, Journal of Personality and Social Psychology, 59 (1990), 1216–29; Gerald Saucier and Lewis R. Goldberg, ‘Assessing the Big Five: Applications of 10 Psychometric Criteria to the Development of Marker Scales’, in Boele De Raad and Marco Perugini, eds, Big Five Assessment (Seattle: Hogrefe and Huber, 2002), pp. 29–58; Gerald Saucier and Lewis R. Goldberg, ‘The Language of Personality: Lexical Perspectives on the Five-Factor Model’, in Wiggins, ed., The Five-Factor Model of Personality, pp. 21–50; Paul T. Costa Jr and Robert R. McCrae, ‘Normal Personality Assessment in Clinical Practice: The NEO Personality Inventory’, Psychological Assessment, 4 (1992), 5–13; Robert R. McCrae, ‘Why I Advocate the Five-Factor Model: Joint Analyses of the NEO-PI with other Instruments’, in David M. Buss and Nancy Cantor, eds, Personality Psychology: Recent Trends and Emerging Directions (New York: Springer-Verlag, 1989), pp. 237–45; Robert R. McCrae and Paul T. Costa Jr, ‘Toward a New Generation of Personality Theories: Theoretical Contexts for the Five-Factor Model’, in Wiggins, ed., The Five-Factor Model of Personality, pp. 51–87; Robert R. McCrae and Paul T. Costa Jr, Personality in Adulthood (New York: Guilford Press, 1990).


23 Our focus is on application of frameworks regarding traits to the study of political behaviour. Although a level of consensus has emerged among students of traits as to the value of five-factor approaches, we do not mean to imply either that full consensus has emerged or that other areas of dispute do not exist among students of personality. On this latter point, see John D. Mayer, ‘A Tale of Two Visions: Can a New View of Personality Help Integrate Psychology?’ American Psychologist, 60 (2005), 294–307.
many students of personality writing in the past fifteen to twenty years concur that five dimensions, extroversion, agreeableness, conscientiousness, emotional stability and openness to experience,\(^{24}\) combine to offer a broad, replicable organizing structure.

Research on the Big Five follows what is known as a lexical approach. In this, it is assumed that critical differences in personality are captured in everyday language, most often adjectives, and that people are capable observers and reporters of individual differences through the use of these words. Hence, indicators of the Big Five dimensions can be derived from self-rating data in which respondents assess the extent to which they possess a series of attributes. Once data are obtained, their dimensional structure is examined via factor analysis. Perhaps the most impressive empirical strengths of the Big Five approach are its consistency and replicability. Countless investigations have been conducted since the 1980s with variance in the form and content of adjectival markers, the subjects from whom data were gathered, and even language and culture. In study after study, the same five dimensions have been observed.

Proponents of five-factor approaches argue that their models enjoy notable breadth in the sense that they capture most important differences in personality across individuals, but do not claim that their models provide exhaustive representations of personality. Indeed, Saucier and Goldberg refer to the Big Five as a starting point,\(^{25}\) and they have initiated efforts to identify important aspects of individual difference excluded by the Big Five. As a broad framework of the sort Winter advocates for research on personality and politics, we believe that the Big Five can serve two general purposes. First, the model offers an excellent means for initial exploration of the relevance of personality for the many areas of mass politics in which attention to psychological antecedents thus far has been scant. Secondly, for those analysts who already have identified links between political behaviour and specific personality attributes, the Big Five constitutes a means to add context to those findings. This second point is consistent with a familiar argument among students of personality. For instance, Ozer and Reise write ‘personality psychologists who continue to employ their preferred measure without locating it within the five-factor model can only be likened to geographers who issue reports on new lands but refuse to locate them on a map for others to find.’\(^{26}\)

Further clarity regarding the content of the Big Five model will come with review of the meaning and derivation of the framework’s five dimensions. For each, attitudinal and behavioural correlates from outside of the realm of politics are mentioned as a means to suggest the potential utility of the Big Five for students of political behaviour. Below, the political significance of the Big Five will be examined with focus on three classes of variables: political attitudes, participation, and information and opinionation. Drawing on past research, our various expectations are of two general forms. In many instances, concrete hypotheses are offered regarding projected links between the Big Five factors and specific dependent variables. In other cases, however, those in which past research provides

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\(^{24}\) The dimensions and their respective content will be described in greater detail below. As we will point out, the most appropriate labels for some of the dimensions remains in dispute. It should be noted that evidence of the existence of these various dimensions precedes, in some cases by many decades, the emergence of five-factor depictions. That is, what is novel about these frameworks is their holistic representation of personality in terms of these five dimensions, not the sheer existence of any or all of the five individual factors.


Openness to Experience

This factor is the newest and most controversial component of the Big Five model. Although we prefer the former, the labels ‘openness to experience’ and ‘intellect’ have received comparable use in the literature. This dimension applies to learning behaviours, strategies and cognitive orientations. High scores are associated with increased creativity, curiosity, imagination and nonconformity, self-efficacy, and high-risk health behaviours.

Openness to experience is expected to be related to several political attitudes. To the extent that our respondents in the United States conceive of ideology in traditional terms, with conservatism signalling caution, and even reticence, regarding possible change, high values on openness to experience should correspond with a heightened likelihood of self-identification as ideologically liberal (in the United States, the ideological left), and with support for the Democratic party. Likewise, we expect the open-mindedness characteristic of this trait to bring an inverse relationship between openness to experience and dogmatism. Lastly, given past research establishing a general link between openness to experience and feelings of personal efficacy, we expect this relationship to extend to the domain of politics, and, more specifically, to perceptions of internal political efficacy.

Although past research provides no strong basis to hypothesize that openness to experience will influence political participation, we do foresee effects of this trait on a wide array of variables pertaining to information acquisition and opinion formation. Most generally, we expect that individuals high in openness to experience will be relatively interested in and attentive to politics. More specifically, the curiosity and perceptiveness of individuals high in openness to experience should position them well to score high on indicators of political knowledge and opinionation, and also to engender a willingness to participate in political discussion. Multiple indicators of information and opinionation are introduced below, and, for these indicators, our measures of openness to experience are predicted to yield strong effects at nearly every turn.

One point warrants clarification. The alternative label ‘intellect’ suggests a possible overlap between openness to experience and indicators of political sophistication such as education level and political knowledge. Although these variables are indeed expected to be correlated, it is important to emphasize that they are far from one and the same, and thus our attention to the Big Five traits in this instance does not merely bring a new label to a familiar concept. As a theoretical matter, there is a critical difference between a general inclination towards imagination and creativity and the actual pursuit of higher education and acquisition of knowledge about politics. As an empirical matter, two of the three

datasets introduced below include measures of openness to experience and both education and political knowledge. When openness to experience is regressed on knowledge and education, the respective $R^2$ values in the two datasets are only 0.05 and 0.01. Hence, any contributions of openness to experience to our understanding of political behaviour will be over and above those of conventional indicators of political sophistication.

**Conscientiousness**

This domain has been described in a variety of guises including ‘superego strength’, ‘prudence’, and ‘control’. All relate the category to the construct of responsibility. People who score high in conscientiousness are viewed as dutiful, organized and reliable. For those who score low, adjectives such as lazy, impulsive and unreliable are considered befitting. Research describes conscientiousness as a ‘non-intellective’ predictor of success in academic and professional careers, and indicates a correlation of the factor with a wide variety of health behaviours including refraining from smoking, mammography utilization, and fitness. It is especially drawn upon as a resource in describing aspects of learning and education, and may also have implications for conformity.

Conscientiousness is expected to be related to several political attitudes. First, the inclination towards conformity and against ‘making waves’ suggests a preference for the status quo and a corresponding reluctance to embrace change. Hence, we predict that conscientiousness will be linked to political ideology, with individuals scoring high in this trait exhibiting a heightened likelihood of self identification as conservative. Secondly, with data from the United States, and given the emphasis Republicans place on duty and personal responsibility, conscientiousness also is expected to correspond with affiliation with the Republican party, along with support for Republican political leaders. Thirdly, the tendency towards conformity and a possible rigidity in thinking lead us to predict a positive relationship between conscientiousness and dogmatism.

The sense of duty common among individuals who score highly in conscientiousness should manifest itself in some forms of political behaviour. We predict that conscientiousness will be related to voter turnout, and possibly also to other forms of participation such as...
as attendance at local political meetings. Likewise, the conscientious should endeavour to stay informed about politics, and thus positive relationships are expected between conscientiousness and both exposure to news about politics and participation in political discussion.

**Extroversion**

This factor is the most widely discussed, researched and cited dimension of personality, and it is a component of numerous personality inventories. Alternative names that have appeared in the literature include ‘sociability’ and ‘activity’. Carl Jung introduced the concepts of ‘extraversion’ and ‘introversion’ when he classified people based on whether they direct their psychic energy outward towards the world, or inward towards their internal processes and psyches. Carl Jung, *Psychological Types, or, The Psychology of Individuation* (New York: Harcourt, Brace & World, 1933).


Mak and Tran, ‘Big Five Personality and Cultural Relocation Factors in Vietnamese Australian Students’ Intercultural Social Self-efficacy.’
Emotional Stability

This factor refers to a person’s reactivity, adjustment and emotionality, and is related to anxiety, excitability, impulse control, instability and negativity. The first inventory to measure neurotic tendencies was Robert Woodworth’s Personal Data Sheet, developed during the First World War to identify military recruits likely to break down in combat. It asked questions such as, ‘Do you feel like jumping off when you are on high places?’ Although it was not a paragon of subtlety, subsequent research showed it to be highly predictive. This domain correlates with levels of psychological distress, degree of interest in social comparison, positive and negative moods, job performance and satisfaction and status in social groups.

Emotional stability is the Big Five trait for which we have the thinnest basis to voice concrete predictions with respect to political behaviour. Individuals with low levels of emotional stability view many developments as unfair and often unsatisfactory, tendencies that may influence political perception; below, one of the dependent variables we consider is perceptions of economic fairness, and a positive link between emotional stability and perceived fairness is expected. The calm ‘keep to themselves’ demeanour of individuals high in emotional stability suggests that these individuals tend to be neither opinionated nor talkative in general, attributes that likely carry over to the political arena. Consequently, levels of political discussion and opinionation are predicted to decrease as a function of emotional stability. This does not mean, however, that individuals high in emotional stability are expected to isolate themselves socially. To the contrary, such a person more likely would be a quiet, reliable presence in group settings, whereas social distress among the person low in emotional stability might compel avoidance of such settings altogether. Consequently, participation in group-based political activities such as attendance at meetings should be most prevalent among individuals with high scores in emotional stability.

Agreeableness

Also related to a person’s social disposition, this domain formally entered the literature with the rise of the Big Five. It refers to co-operative, sympathetic and altruistic tendencies, and has been shown to predict membership in coalitions and strategic alliances, social trust, conflict avoidance and conflict resolution and health behaviours.

The most obvious political correlates of agreeableness are interpersonal and political trust, as individuals with high scores on agreeableness are expected to exhibit correspondingly high levels of trust. It is for political participation, though, that agreeableness is most intriguing. On the one hand, the co-operative tendencies of people high in agreeableness should incline them towards group participation. For example, it is easy to envision the person high in agreeableness joining a collective effort such as a petition drive. On the other hand, however, political participation is rooted in disagreement to an extent unmatched by many other forms of collective effort, and this may be off-putting to the person high in agreeableness. As one example, agreeableness would more likely translate into participation in a charitable campaign than the move to impeach a judge. Indeed, if the confrontational aspects of politics are disconcerting to individuals with high levels of agreeableness, then general levels of politicization – interest in politics, attention to politics, political opinionation, political discussion and so on – may be low among the agreeable. This tension between a taste for participation and a possible distaste for politics provides an especially interesting question as we pursue the link between the Big Five and political behaviour.

Despite its impressive fertility, applications of the Big Five in the study of mass politics, and even recognition of the model’s existence by political scientists, have been rare. Marcus views the Big Five and related frameworks as offering ‘a rich opportunity for new research’, and Marcus and his colleagues have examined the link between three of the Big Five factors – extroversion, emotional stability and openness to experience – and political tolerance. This research initially found significant effects for all three variables, although only the effect for emotional stability persisted once controls were introduced to account for respondents’ prior tolerance beliefs and commitment to democratic norms. Outside of the realm of mass politics, Kowert and Hermann draw on the five-factor model in research on foreign policy decision making. Their data, gathered from 126 undergraduate students, include the Costa and McCrae personality battery.

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59 McCrae and Costa, ‘Toward a New Generation of Personality Theories.’
Conscientiousness is found to be related to risk avoidance, whereas openness to experience is linked to risk taking.

One direct application of the Big Five to the study of mass politics has been reported by a team of psychologists, Caprara, Barbaranelli and Zimbardo. The articles in this project draw on mass and elite survey data from Italy to examine the interplay between the personalities of elected officials and the public perceptions of those same leaders. Analyses reveal that there is a convergence in the personality attributes of mass and elite adherents to the same political parties, and also that mass perceptions of political leaders apparently are dominated by two of the Big Five factors, extroversion and agreeableness.

These findings only hint at the return that may come with a concerted effort to apply the Big Five in the study of mass politics. The strategy we follow is designed to offer a diverse array of evidence on this point, and thus the relationships between the Big Five factors and numerous dependent variables are considered. Our central objective in this exercise is to determine whether personality attributes do, in fact, function as antecedents of mass attitudes and behaviours. To the extent that such effects are identified, subsequent goals include assessment of whether the impact of personality is greatest for specific classes of dependent variables and determination of whether one or more of the Big Five factors exert especially prominent influence. Importantly, although a multi-faceted course is followed, the exercise conducted here is best viewed as merely a first step in the effort to explore the applicability of five-factor approaches to the study of political behaviour. The Big Five factors may be of relevance for countless dependent variables beyond those examined here, and multiple hypotheses regarding possible indirect and conditional effects warrant attention in future research.

Data from three datasets will be examined. Each of the surveys included items designed to tap all of the Big Five factors, along with numerous items measuring political attitudes and behaviours. These data will permit a broad-scale assessment of the possible political impact of variance in individuals’ personality attributes.

PERSONALITY AND MASS ATTITUDES

Our analysis brings attention to the possible political effects arising from variance in the personalities of citizens. Using data from two telephone surveys and one paper-and-pencil survey, we first develop indicators of the Big Five personality factors and then employ the measures as predictors in models examining an array of dependent variables concerning political attitudes and predispositions, political behaviour and the acquisition of information about politics. A tremendous wealth of research has demonstrated the validity of self-reported measures of personality, and especially of measures of the Big Five. We draw on that work in development of our indicators.


66 Labelled as ‘energy’ in the Caprara et al. studies, and represented with adjectival indicators such as ‘dynamic’ and ‘energetic’.

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66 Labelled as ‘energy’ in the Caprara et al. studies, and represented with adjectival indicators such as ‘dynamic’ and ‘energetic’.
Big Five Personality Markers

Our first dataset was acquired from a random sample telephone survey we administered in late 1998 to 404 residents of the Tallahassee, Florida, metropolitan area, with a response rate of 49.6 per cent. A random-digit dialling framework was used to select respondents. The survey instrument included eighty-two items. The initial portion of the survey focused on social and political attitudes and behaviours, and demographics. The personality inventory was introduced via a battery of bipolar adjective, or semantic differential, questions. Respondents were directed to rank themselves on a scale of 0 to 10, with each pole representing one extreme of the adjective pair. Items were drawn from existing literature, especially Goldberg’s set of unipolar and bipolar markers and the Big Five Inventory (BFI). Word choices were made to be understandable and meaningful in order to maximize reliability and variance in responses. The personality inventory included twenty-one adjective pairs, with the expectation that from these would emerge five factors with four to five items in each.

The second survey also was administered in the Tallahassee, Florida, metropolitan area, in late 2004, with a response rate of 54.1 per cent. Interviews were completed by 822 respondents. Again, a random-digit dialling approach was used to select respondents. This survey was not run under our supervision, but we were able to place a brief ten-item personality battery on the instrument. We used two adjective pairs for each of the Big Five dimensions, with these adjective pairs drawn from those used to construct our final measures of the Big Five on the 1998 community survey.

The final survey was a paper-and-pencil instrument administered in the spring of 2005. This was an omnibus survey administered by us in collaboration with a larger team of researchers; the survey bundled items of our design with those of the other analysts. Personality items and many baseline indicators of political predispositions were asked of all 1,338 respondents, whereas other items – a series of experiments – were asked only of approximately one-third of the study’s participants. Respondents on this last survey were individuals who had been called for jury duty, but not yet assigned to actual juries, in nineteen randomly-selected counties from across the United States. Analyses of data from the jury study establish that respondents provided excellent matches to the populations of their source counties, and also that respondents as a whole matched national census data as well as, or better than, respondents in prominent national political surveys such as the NES.

In constructing scales of the Big Five factors, we relied on factor analysis to select and group items in our initial survey, whereas scales from our second and third surveys simply made use of two and five items per Big Five factor, respectively. In all cases, we began by recoding individual items so that a value of 1 corresponded with possession of the trait in question (i.e., 1 = highly extroverted, highly responsible, and so on). Because many items had noticeably skewed distributions, presumably because of social desirability effects, we then took the natural log of each recoded item. Final scale values reported

67 Goldberg, ‘The Development of Markers for the Big-Five Factor Structure’.
68 More specifically, we included four items for each of the five factors, plus an extra item for intellect. The extra item was included because resources were available to do so and because our a priori, and largely intuitive, concerns regarding the adequacy of four-item batteries were greatest for intellect.
69 This survey was conducted by Mary Anderson, and we thank her for inclusion of our personality battery in part of her project.
70 For example, many more respondents should be expected to view themselves as being highly intelligent than as highly unintelligent. Using logged variables has no effect on the general patterns of relationships reported below,
### Table 1: Survey-Based Indicators of the Big Five

<table>
<thead>
<tr>
<th>Personality factors</th>
<th>Component items</th>
<th>Scale mean (s.d.)</th>
<th>Cronbach’s alpha</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. 1998 Community Survey</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness to experience</td>
<td>Perceptive – shortsighted Efficient – inefficient Self-assured – unselfassured Intelligent – unintelligent Confident – unconfident Complex – simple</td>
<td>0.83 (0.44)</td>
<td>0.72</td>
<td>394</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Neat – sloppy Organized – disorganized Careful – careless Responsible – irresponsible Cautious – reckless</td>
<td>0.95 (0.49)</td>
<td>0.75</td>
<td>402</td>
</tr>
<tr>
<td>Extroversion</td>
<td>Extroverted – introverted Outgoing – reserved Talkative – quiet</td>
<td>1.03 (0.55)</td>
<td>0.70</td>
<td>390</td>
</tr>
<tr>
<td>Emotional stability</td>
<td>Secure – insecure Calm – tense Relaxed – nervous</td>
<td>1.08 (0.52)</td>
<td>0.71</td>
<td>398</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>Warm – cold Kind – unkind Agreeable – disagreeable Sympathetic – unsympathetic</td>
<td>1.06 (0.48)</td>
<td>0.67</td>
<td>397</td>
</tr>
</tbody>
</table>

**B. 2004 Community Survey**

<table>
<thead>
<tr>
<th>Personality factors</th>
<th>Component items</th>
<th>Scale mean (s.d.)</th>
<th>Cronbach’s alpha</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openness to experience</td>
<td>Confident – unconfident Intelligent – unintelligent</td>
<td>1.48 (0.64)</td>
<td>0.41</td>
<td>822</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Organized – disorganized Neat – sloppy</td>
<td>1.30 (0.70)</td>
<td>0.52</td>
<td>822</td>
</tr>
<tr>
<td>Extroversion</td>
<td>Extroverted – introverted Outgoing – reserved</td>
<td>1.11 (0.68)</td>
<td>0.57</td>
<td>822</td>
</tr>
<tr>
<td>Emotional stability</td>
<td>Calm – tense Relaxed – nervous</td>
<td>1.24 (0.67)</td>
<td>0.57</td>
<td>822</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>Kind – unkind Sympathetic – unsympathetic</td>
<td>1.63 (0.64)</td>
<td>0.39</td>
<td>822</td>
</tr>
</tbody>
</table>

**Pearson’s R**

<table>
<thead>
<tr>
<th>Personality factors</th>
<th>Component items</th>
<th>Scale mean (s.d.)</th>
<th>Cronbach’s alpha</th>
<th>Number of cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openness to experience</td>
<td>Confident – unconfident Intelligent – unintelligent</td>
<td>1.48 (0.64)</td>
<td>0.41</td>
<td>822</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Organized – disorganized Neat – sloppy</td>
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</tr>
<tr>
<td>Agreeableness</td>
<td>Kind – unkind Sympathetic – unsympathetic</td>
<td>1.63 (0.64)</td>
<td>0.39</td>
<td>822</td>
</tr>
<tr>
<td>Personality factors</td>
<td>Component items</td>
<td>Scale mean (s.d.)</td>
<td>Cronbach’s alpha</td>
<td>Number of cases</td>
</tr>
<tr>
<td>----------------------------</td>
<td>------------------------------------------------------</td>
<td>------------------</td>
<td>------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>C. 2005 National Jury Survey</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness to experience</td>
<td>Imaginative – unimaginative</td>
<td>1.12 (0.42)</td>
<td>0.75</td>
<td>1,224</td>
</tr>
<tr>
<td></td>
<td>Analytical – unanalytical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Creative – uncreative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curious – uncurious</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intellectual – unintellectual</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Systematic – unsystematic</td>
<td>1.29 (0.43)</td>
<td>0.76</td>
<td>1,254</td>
</tr>
<tr>
<td></td>
<td>Hard working – lazy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neat – sloppy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Careful – careless</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Responsible – irresponsible</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroversion</td>
<td>Extroverted – introverted</td>
<td>0.86 (0.41)</td>
<td>0.79</td>
<td>1,219</td>
</tr>
<tr>
<td></td>
<td>Talkative – quiet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bold – timid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spontaneous – inhibited</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outgoing – shy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional stability</td>
<td>Calm – angry</td>
<td>0.93 (0.41)</td>
<td>0.79</td>
<td>1,258</td>
</tr>
<tr>
<td></td>
<td>Relaxed – tense</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At ease – nervous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Steady – moody</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Content – discontented</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>Warm – cold</td>
<td>1.26 (0.43)</td>
<td>0.79</td>
<td>1,253</td>
</tr>
<tr>
<td></td>
<td>Gentle – harsh</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kind – unkind</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Polite – rude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sympathetic – unsympathetic</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Minimum values on all scales are set to equal 0. High values signify openness to experience, conscientiousness, extroversion, emotional stability and agreeableness.

in Table 1 reflect the average of these recoded, logged scores for the items used to construct each scale.

All of our scales fare well on reliability when compared with results for other brief indicators of the Big Five. For the 1998 community survey (hereafter, 1998 CS) and the 2005 jury survey (2005 NJS), all Cronbach’s alpha values but one reach or exceed 0.70, particularly in terms of the direction of relationships between the Big Five traits and the various dependent variables. The most important effect of use of logged variables is on scale construction; by minimizing the impact of social desirability, scale reliability typically was increased. For example, in the first section of Table 1, the largest alpha is 0.75 for conscientiousness. Using the unlogged variables, an alpha of 0.70 is attained.

the one exception being agreeableness on the 1998 CS. Agreeableness also brings up the rear on the 2004 community survey (2004 CS), a result not uncommon in research on the Big Five.\textsuperscript{72} The Big Five scales described in Table 1 will serve as the central predictors in our subsequent analyses. Models also will include controls for age, education, sex and race.\textsuperscript{73} Three groups of dependent variables are available for consideration in our initial analyses: indicators of political attitudes and predispositions, participation, and attentiveness to political information. In these models, our objective is to determine whether personality exerts direct effects on relevant political variables.

\textit{The Impact of Personality on Political Attitudes and Behaviour}

Although individual factors in the Big Five model are expected to exert numerous specific effects, two more general expectations warrant emphasis. First, we posit that variance in personality will be related to virtually all questions of interest to students of political behaviour. A large number of models will be estimated, with dependent variables that we feel represent the breadth and diversity of contemporary research on mass politics. Support for our claims regarding the relevance and applicability of the Big Five model will emerge only if personality matters far more often than not. To be clear, by this we mean that one or more personality variables should be expected to produce significant effects in virtually all models. We do not expect that all facets of personality will matter for all aspects of politics, but we do expect that some aspect of personality should matter in most cases. Secondly, each of the Big Five factors is expected to produce at least some significant effects. We have echoed the growing consensus in psychology by advocating the use of a broad-scale model. Given the collective breadth of the tests reported below, we recognize that the potential utility of such a model would be severely undercut were we to find that some of the Big Five factors are unrelated to political behaviour.

Analysis begins in Table 2 with a look at the impact of the Big Five attributes on respondents’ political attitudes and predispositions. Here and in subsequent tables, the first column lists the dependent variables along with information on how those variables are scaled and what estimation procedure was used. The next five columns report coefficient estimates for the Big Five factors. The last row in each table lists the total number of significant effects recorded for each of the Big Five variables, with separate counts recorded for the 0.05 and 0.10 significance levels.\textsuperscript{74}

Recall that our strongest expectations with respect to political attitudes focus on openness to experience and conscientiousness. These traits are predicted to produce opposing effects on ideology, partisanship, attitudes regarding partisan political leaders,


\textsuperscript{73} The Big Five markers are only weakly related to our demographic control variables. There are twenty bivariate correlations between the demographic controls and personality for each of the three datasets. The highest correlations are, respectively, 0.19 (1998 CS, sex and extroversion), 0.23 (2004 CS, sex and agreeableness), and 0.21 (2005 NJS, sex and agreeableness, and education and openness to experience). These results are consistent with those in earlier research; see Lewis R. Goldberg, Dennis Sweeney, Peter F. Merenda and John Edward Hughes Jr, ‘Demographic Variables and Personality: The Effects of Gender, Age, Education, and Ethnic/Racial Status on Self-Descriptions of Personality Attributes’, \textit{Personality and Individual Differences}, 24 (1998), 393–403.

\textsuperscript{74} There are very few missing cases caused by the lack of data for the personality variables or our demographic controls, and listwise deletion is used for those few instances in which predictors are unavailable. It should be clear that for results in Tables 2–4 from within a given survey, variance in the number of cases from one model to the next is a consequence of the number of valid observations on the dependent variables.
<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Openness to experience</th>
<th>Conscientiousness</th>
<th>Extroversion</th>
<th>Emotional stability</th>
<th>Agreeableness</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Partisanship</em> (0 = strong Democrat, to 6 = strong Republican; ordered logit; 1998 CS; N = 338)</td>
<td>-0.05 (0.31)</td>
<td>0.11 (0.25)</td>
<td>0.20 (0.20)</td>
<td>-0.06 (0.23)</td>
<td>-0.66** (0.24)</td>
</tr>
<tr>
<td><em>Partisanship</em> (coded as above; ordered logit; 2004 CS; 783)</td>
<td>-0.29* (0.12)</td>
<td>0.24* (0.10)</td>
<td>0.15 (0.10)</td>
<td>0.10 (0.11)</td>
<td>-0.33** (0.12)</td>
</tr>
<tr>
<td><em>Partisanship</em> (coded as above; ordered logit; 2005 NJS; 1,137)</td>
<td>-0.41* (0.16)</td>
<td>0.71*** (0.17)</td>
<td>-0.06 (0.15)</td>
<td>0.37* (0.16)</td>
<td>-0.24 (0.16)</td>
</tr>
<tr>
<td><em>Ideology</em> (0 = strong liberal, to 6 = strong conservative; ordered logit; 1998 CS; 358)</td>
<td>-0.22 (0.30)</td>
<td>0.83** (0.25)</td>
<td>0.17 (0.19)</td>
<td>0.13 (0.21)</td>
<td>-0.36 (0.23)</td>
</tr>
<tr>
<td><em>Ideology</em> (0 = strong liberal, to 4 = strong conservative; ordered logit; 2004 CS; 797)</td>
<td>-0.36** (0.12)</td>
<td>0.33** (0.11)</td>
<td>0.15 (0.10)</td>
<td>0.28* (0.11)</td>
<td>-0.17 (0.12)</td>
</tr>
<tr>
<td><em>Ideology</em> (0 = strong liberal, to 6 = strong conservative; ordered logit; 2005 NJS; 1,133)</td>
<td>-0.92*** (0.16)</td>
<td>0.79*** (0.17)</td>
<td>0.01 (0.15)</td>
<td>0.56*** (0.16)</td>
<td>-0.21 (0.17)</td>
</tr>
<tr>
<td><em>Clinton approval</em> (0 = strongly disapprove, to 4 = strongly approve; ordered logit; 1998 CS; 365)</td>
<td>0.07 (0.31)</td>
<td>-0.11 (0.25)</td>
<td>0.04 (0.20)</td>
<td>0.34 (0.23)</td>
<td>0.41# (0.25)</td>
</tr>
<tr>
<td><em>Bush approval</em> (0 = strongly disapprove to 3 = strongly approve; ordered logit; 2004 CS; 790)</td>
<td>-0.30* (0.12)</td>
<td>0.31** (0.11)</td>
<td>0.15 (0.10)</td>
<td>0.00 (0.11)</td>
<td>-0.14 (0.12)</td>
</tr>
<tr>
<td><em>Bush approval</em> (coded as above; ordered logit; 2005 NJS; 1,129)</td>
<td>-0.79*** (0.17)</td>
<td>0.76*** (0.17)</td>
<td>0.05 (0.15)</td>
<td>0.52** (0.16)</td>
<td>-0.00 (0.17)</td>
</tr>
<tr>
<td>Dependent variable</td>
<td>Openness to experience</td>
<td>Conscientiousness</td>
<td>Extroversion</td>
<td>Emotional stability</td>
<td>Agreeableness</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>--------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Retrospective pocketbook economic perceptions (0 = family finances have become much worse, to 4 = much better; ordered logit; 1998 CS; 364)</td>
<td>-0.14 (0.32)</td>
<td>0.18 (0.25)</td>
<td>0.26 (0.20)</td>
<td>0.37# (0.25)</td>
<td>-0.23 (0.25)</td>
</tr>
<tr>
<td>Retrospective sociotropic economic perceptions (0 = national finances have become much worse, to 4 = much better; ordered logit; 1998 CS; 357)</td>
<td>0.58# (0.31)</td>
<td>-0.27 (0.25)</td>
<td>0.12 (0.20)</td>
<td>-0.05 (0.22)</td>
<td>-0.01 (0.24)</td>
</tr>
<tr>
<td>Economic fairness (0 = changes in economy have benefited some class groups more than others, 1 = changes have had same effects for all class groups; binomial logit; 1998 CS; 335)</td>
<td>-0.45 (0.35)</td>
<td>0.25 (0.29)</td>
<td>0.21 (0.23)</td>
<td>0.67** (0.26)</td>
<td>-0.38 (0.28)</td>
</tr>
<tr>
<td>External efficacy (0 = no say in government, to 4 = say in government; ordered logit; 1998 CS; 366)</td>
<td>0.14 (0.30)</td>
<td>-0.69** (0.24)</td>
<td>-0.00 (0.20)</td>
<td>0.32 (0.22)</td>
<td>0.47* (0.24)</td>
</tr>
<tr>
<td>External efficacy (0 = local officials do not care at all about what respondent thinks is important for community, to 3 = care very much; ordered logit; 2004 CS; 769)</td>
<td>-0.20 (0.13)</td>
<td>0.06 (0.11)</td>
<td>0.02 (0.10)</td>
<td>-0.08 (0.11)</td>
<td>0.22# (0.13)</td>
</tr>
<tr>
<td>Internal efficacy (0 = cannot understand government, to 4 = can understand government; ordered logit; 1998 CS; 365)</td>
<td>1.09*** (0.31)</td>
<td>-0.99*** (0.25)</td>
<td>0.05 (0.19)</td>
<td>0.22 (0.22)</td>
<td>0.05 (0.24)</td>
</tr>
<tr>
<td>Internal efficacy (coded as above; ordered logit; 2005 NJS; 379)</td>
<td>1.18*** (0.30)</td>
<td>0.22 (0.30)</td>
<td>0.12 (0.26)</td>
<td>0.38 (0.28)</td>
<td>-1.12*** (0.31)</td>
</tr>
<tr>
<td>Dependent variable</td>
<td>Openness to experience</td>
<td>Conscientiousness</td>
<td>Extroversion</td>
<td>Emotional stability</td>
<td>Agreeableness</td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>---------------------</td>
<td>--------------</td>
</tr>
<tr>
<td><strong>Internal efficacy</strong> (0 = respondent can make no difference at all in community, to 3 = can make a big difference; ordered logit; 2004 CS; 804)</td>
<td>0.22# (0.12)</td>
<td>0.05 (0.11)</td>
<td>0.28** (0.10)</td>
<td>0.05 (0.11)</td>
<td>0.10 (0.12)</td>
</tr>
<tr>
<td><strong>Interpersonal trust</strong> (three-item scale; 0 = low, to 3 = high; ordered logit; 2004 CS; 803)</td>
<td>0.07 (0.12)</td>
<td>−0.11 (0.11)</td>
<td>0.05 (0.10)</td>
<td>0.13 (0.11)</td>
<td>0.38** (0.12)</td>
</tr>
<tr>
<td><strong>Political trust</strong> (0 = respondent never trusts local political officials, to 3 = trusts officials most of the time; ordered logit; 2004 CS; 793)</td>
<td>−0.37** (0.14)</td>
<td>0.10 (0.12)</td>
<td>0.04 (0.11)</td>
<td>−0.05 (0.12)</td>
<td>0.34* (0.14)</td>
</tr>
<tr>
<td><strong>Support for democratic values</strong> (two-item scale; 0 = low to 6 = high; ordered logit; 2004 CS; 816)</td>
<td>0.28* (0.12)</td>
<td>0.12 (0.11)</td>
<td>0.06 (0.10)</td>
<td>−0.14 (0.11)</td>
<td>0.07 (0.13)</td>
</tr>
<tr>
<td><strong>Dogmatism</strong> (two-item scale; 0 = low to 6 = high; ordered logit; 2004 CS; 788)</td>
<td>−0.40** (0.12)</td>
<td>0.31** (0.10)</td>
<td>0.03 (0.10)</td>
<td>0.30** (0.11)</td>
<td>−0.04 (0.12)</td>
</tr>
<tr>
<td><strong>Total Significant Effects</strong> (sum of effects significant across the 21 tests at ( p &lt; 0.05 ), ( p &lt; 0.10 ))</td>
<td>11,13</td>
<td>10,10</td>
<td>1,1</td>
<td>6,7</td>
<td>6,8</td>
</tr>
</tbody>
</table>

*Note:* Cell entries are coefficient estimates for models in which variables in Column 1 were regressed on variables in Columns 2–6, along with controls for age, education, race and sex. ***\( p < 0.001 \); **\( p < 0.01 \); *\( p < 0.05 \); #\( p < 0.10 \).
and dogmatism. Additionally, internal political efficacy is hypothesized to be associated with both openness to experience and extroversion. Emotional stability is predicted to influence perceptions of economic fairness, whereas agreeableness is hypothesized to influence both interpersonal and political trust.

Consistent with expectations, results in the top several rows of Table 2 offer strong evidence that openness to experience and conscientiousness are linked to important political predispositions and attitudes. Strongly consistent results are obtained at every turn for the 2004 CS and the 2005 NJS, with openness to experience inversely related to identification with the Republican party, ideological conservatism, and approval of President Bush; conversely, positive links emerge between all of these same variables and conscientiousness. The strength and consistency of these effects suggests that fundamental political predispositions are substantially rooted in personality. Also, unexpectedly, four of the emotional stability effects for these same variables reach statistical significance, indicating at least some tendency for individuals who are calm and secure to lean towards the political right. Economic perceptions appear to be essentially unrelated to personality, with one exception, an expected positive connection between emotional stability and perceptions of economic fairness. Several coefficients reach statistical significance in the five efficacy models, although the only consistent patterns are that agreeableness appears to promote external efficacy, whereas, as predicted, openness to experience corresponds to feelings of internal efficacy. Also as expected, interpersonal and political trust both increase as a function of agreeableness. Lastly, the projected effects for dogmatism emerge, with dogmatism related to conscientiousness and to low values on openness to experience.

The summary statistics in the last row of Table 2 reveal that openness to experience and conscientiousness both produced statistically significant effects in roughly half of the models of political attitudes and predispositions. As noted above, the results for partisanship, ideology and presidential approval largely account for these totals. Emotional stability and agreeableness also yield multiple significant effects. Hence, the outlier in Table 2 is extroversion, which brought only a single statistically significant effect, for internal efficacy on the 2004 CS (a result that was not replicated on the 1998 CS).

Our attention next turns to political participation. For participation, our strongest hypotheses focus on extroversion, as extroversion is expected to influence engagement in group-based participatory acts such as working on campaigns, attendance at political meetings, and so on. A sense of duty might influence some forms of participation, and thus effects for conscientiousness are predicted. Lastly, we surmised that agreeableness might result in a general distaste for politics, yet also an inclination towards civic engagement, especially at the local level.

In Table 3, results for the first four personality variables are essentially opposite of those in Table 2 – openness to experience, conscientiousness and emotional stability show no consistent link to political participation. Although we surmised that conscientiousness might incline some individuals towards political participation, Table 3 offers no consistent evidence of such an effect. Most noteworthy in Table 3 is that, as hypothesized, extroversion produces positive effects in all eleven models, including seven coefficients that achieve at least a minimum level of statistical significance. With the possible exception of the vote, political participation almost always entails some form of social interaction. Hence, the consistent influence of extroversion on participation is entirely sensible. Although these findings enjoy considerable theoretical and intuitive appeal, research on individual differences in rates of political participation is hardly rife with attention to extroversion.
<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Openness to experience</th>
<th>Conscientiousness</th>
<th>Extroversion</th>
<th>Emotional stability</th>
<th>Agreeableness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voter turnout, 1998 midterm congressional election (0 = respondent reported not voting, 1 = respondent reported voting; binomial logit; 1998 CS; N = 364)</td>
<td>-0.02 (0.36)</td>
<td>-0.17 (0.29)</td>
<td>0.27 (0.24)</td>
<td>0.14 (0.26)</td>
<td>-0.53# (0.29)</td>
</tr>
<tr>
<td>Voter turnout, 2004 election (coded as above; binomial logit; 2005 NJS; 396)</td>
<td>-0.27 (0.51)</td>
<td>-0.28 (0.29)</td>
<td>0.17 (0.46)</td>
<td>0.68 (0.54)</td>
<td>-0.34 (0.50)</td>
</tr>
<tr>
<td>Participation: buttons, bumper stickers, yard signs (number of these respondent did, 0 to 3; neg. binomial; 1998 CS; 365)</td>
<td>0.08 (0.34)</td>
<td>-0.28 (0.27)</td>
<td>0.25 (0.22)</td>
<td>0.25 (0.25)</td>
<td>-0.04 (0.27)</td>
</tr>
<tr>
<td>Participation: attend campaign meetings, rallies, speeches, dinners (number attended, 0 to 4 or more; negative binomial; 367)</td>
<td>-0.16 (0.33)</td>
<td>0.21 (0.27)</td>
<td>0.59** (0.21)</td>
<td>0.40# (0.24)</td>
<td>-0.26 (0.26)</td>
</tr>
<tr>
<td>Participation: attend campaign meetings, rallies, speeches, dinners (coded as above; neg. binomial; 2005 NJS; 395)</td>
<td>0.03 (0.27)</td>
<td>-0.01 (0.28)</td>
<td>0.50* (0.25)</td>
<td>0.18 (0.26)</td>
<td>-0.45 (0.29)</td>
</tr>
<tr>
<td>Participation: work for a party or candidate (number of times, 0 to 4 or more; negative binomial; 1998 CS; 367)</td>
<td>-0.21 (0.50)</td>
<td>-0.08 (0.42)</td>
<td>0.20 (0.34)</td>
<td>0.78* (0.37)</td>
<td>-0.28 (0.41)</td>
</tr>
<tr>
<td>Attend meetings regarding local political issues (likelihood of attending, 0 = low to 6 = high; ordered logit; 2004 CS; 801)</td>
<td>-0.12 (0.12)</td>
<td>0.29** (0.11)</td>
<td>0.18# (0.10)</td>
<td>-0.14 (0.11)</td>
<td>0.37** (0.12)</td>
</tr>
<tr>
<td>Speak at meetings on local political issues (0 to 6; ordered logit; 2004 CS; 801)</td>
<td>0.32** (0.12)</td>
<td>-0.03 (0.10)</td>
<td>0.54*** (0.10)</td>
<td>0.04 (0.11)</td>
<td>-0.01 (0.12)</td>
</tr>
<tr>
<td>Sign petitions regarding local political issues (0 to 6; ordered logit; 2004 CS; 796)</td>
<td>0.06 (0.13)</td>
<td>-0.06 (0.12)</td>
<td>0.23* (0.11)</td>
<td>0.01 (0.12)</td>
<td>0.35** (0.11)</td>
</tr>
<tr>
<td>Contact elected official about local political issues (0 to 6; ordered logit; 2004 CS; 795)</td>
<td>0.03 (0.12)</td>
<td>0.18# (0.11)</td>
<td>0.19# (0.10)</td>
<td>0.02 (0.11)</td>
<td>0.29* (0.12)</td>
</tr>
<tr>
<td>Write letters to editor on local political issues (0 to 6; ordered logit; 2004 CS; 789)</td>
<td>0.10 (0.12)</td>
<td>0.17 (0.10)</td>
<td>0.18# (0.10)</td>
<td>-0.02 (0.11)</td>
<td>0.27* (0.12)</td>
</tr>
<tr>
<td>Total Significant Effects (sum of effects significant across 11 tests at p &lt; 0.05, p &lt; 0.10)</td>
<td>1.1</td>
<td>1.2</td>
<td>4.7</td>
<td>1.2</td>
<td>4.5</td>
</tr>
</tbody>
</table>

Note: Cell entries are coefficient estimates for models in which variables in Column 1 were regressed on variables in Columns 2–6, along with controls for age, education, race and sex; standard errors are in parentheses. ***p < 0.001; **p < 0.01; *p < 0.05; #p < 0.10.
In our earlier discussion of agreeableness, we commented that we were intrigued by the apparent tension inherent in this variable as a predictor of participation: agreeableness should incline individuals towards social involvement, but it may dissuade them from entering the political fray. In this light, the results in Table 3 make good sense. The first six dependent variables were formed from items that asked about participation in conjunction with national elections. Here, agreeableness produces a negative sign in each instance, although four of the six effects fall well short of conventional levels of statistical significance. In contrast, statistically significant positive effects are found for four of the final five variables, all of which involve participation in local politics. Consequently, it appears the effects of agreeableness on political participation can range across situations from positive to neutral-negative.

Our final models of possible direct effects focus on a series of indicators of political information and opinionation. At question in these models is whether traits matter for the individual-level tendency to be exposed to information about politics, to discuss politics, to hold political opinions and to be politically knowledgeable. We have hypothesized that openness to experience will be related to most aspects of political information and opinionation. Additionally, conscientiousness is predicted to bring a heightened tendency to monitor the political arena, and extroverts are hypothesized to be prone towards both political opinionation and political discussion.

Taking the last of these predictions first, in Table 4, as in the models of political participation, several strong effects emerge for extroversion. Interestingly, extroverts have relatively high levels of political discussion and opinionation, but relatively low levels of political knowledge. A similar pattern is found for the conscientious, as individuals high in this trait dutifully watch televised news and engage in political discussion, but actually know relatively little about politics and public affairs. Together, these patterns provide at least a partial explanation for the imperfect relationship between opinionation and discussion, on the one hand, and political knowledge, on the other – two of the factors linked positively to the former are linked negatively to the latter. In contrast with these results, strongly consistent findings are, as expected, reported for openness to experience. Individuals high in this trait engage in political discussion, attend to and are interested in politics, are opinionated, and actually do possess relatively high levels of political knowledge. Results for agreeableness provide additional evidence that the agreeable have a modest but general tendency to avoid certain aspects of the political world. In Table 4, at least marginally significant negative effects are found for agreeableness and political discussion in the context of a national campaign, attention to politics and opinionation.

Across all of the results reported in Tables 2–4, the personality variables produced effects significant at the 0.05 level in thirty-nine of forty-six models, and at the 0.10 level in forty-four of forty-six models. No clear evidence was found of a direct link between personality and either voter turnout or economic perceptions, but such evidence was obtained for every other dependent variable considered. Just under one-third of all coefficients reached statistical significance at the 0.05 level, and over 40 per cent reached significance at the more generous 0.10 threshold. All of the tests involving data from the 1998 CS involved fewer than 400 cases, as did a portion of the tests from the 2005 NJS. These small Ns naturally worked against the identification of significant results. Remaining tests from the 2005 NJS and the 2004 CS all involved over 700 cases, sample sizes more in line with norms for survey research in political science. Among these tests, coefficients significant at the 0.05 level were reported just under 50 per cent of the time, and 55 per cent of effects were significant at the 0.10 mark.
<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Openness to experience</th>
<th>Conscientiousness</th>
<th>Extroversion</th>
<th>Emotional stability</th>
<th>Agreeableness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Newspaper use</strong> (number of days in the past week respondent read a newspaper, 0 to 7; negative binomial; 1998 CS; N = 363)</td>
<td>0.10 (0.14)</td>
<td>-0.12 (0.12)</td>
<td>0.20* (0.09)</td>
<td>0.07 (0.10)</td>
<td>-0.06 (0.11)</td>
</tr>
<tr>
<td><strong>Television news viewing</strong> (number of days in the past week respondent watched news on television, 0 to 7; negative binomial; 1998 CS; 367)</td>
<td>-0.06 (0.10)</td>
<td>0.19* (0.08)</td>
<td>0.13* (0.06)</td>
<td>-0.02 (0.07)</td>
<td>0.00 (0.07)</td>
</tr>
<tr>
<td><strong>Political discussion</strong> (number of days in the past week respondent discussed politics, 0 to 7; negative binomial; 1998 CS; 364)</td>
<td>0.53*** (0.14)</td>
<td>0.24* (0.12)</td>
<td>0.16# (0.09)</td>
<td>-0.07 (0.10)</td>
<td>-0.23* (0.11)</td>
</tr>
<tr>
<td><strong>Political discussion</strong> (coded as above; negative binomial; 2005 NJS; 398)</td>
<td>0.30** (0.11)</td>
<td>0.04 (0.11)</td>
<td>0.15 (0.10)</td>
<td>-0.12 (0.11)</td>
<td>-0.10 (0.12)</td>
</tr>
<tr>
<td><strong>Political discussion</strong> (frequency of discussion, 0 = never to 3 = very often; ordered logit; 2004 CS; 807)</td>
<td>0.40** (0.12)</td>
<td>-0.02 (0.11)</td>
<td>0.35** (0.10)</td>
<td>-0.25* (0.11)</td>
<td>0.06 (0.12)</td>
</tr>
<tr>
<td><strong>Discussion of local politics</strong> (frequency, 0 = never to 3 = very often; ordered logit; 2004 CS; 807)</td>
<td>0.11 (0.12)</td>
<td>0.18# (0.10)</td>
<td>0.25* (0.10)</td>
<td>-0.07 (0.11)</td>
<td>-0.12 (0.12)</td>
</tr>
<tr>
<td><strong>Attention to politics</strong> (0 = respondent hardly follows politics at all, to 3 = respondent follows politics most of the time; ordered logit; 1998 CS; 365)</td>
<td>0.62* (0.31)</td>
<td>-0.26 (0.26)</td>
<td>0.25 (0.20)</td>
<td>0.19 (0.23)</td>
<td>-0.43# (0.25)</td>
</tr>
<tr>
<td>Dependent variable</td>
<td>Openness to experience</td>
<td>Conscientiousness</td>
<td>Extroversion</td>
<td>Emotional stability</td>
<td>Agreeableness</td>
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<tr>
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<td>--------------</td>
</tr>
<tr>
<td>Opinionation (0 = respondent has opinions about very few things, to 3 = respondent has opinions about most things; ordered logit; 1998 CS; 367)</td>
<td>1.18*** (0.31)</td>
<td>−0.47# (0.25)</td>
<td>0.53** (0.20)</td>
<td>−0.42# (0.22)</td>
<td>−0.18 (0.24)</td>
</tr>
<tr>
<td>Opinionation (coded as above; ordered logit; 2005 NJS; 396)</td>
<td>1.87*** (0.33)</td>
<td>0.23 (0.54)</td>
<td>0.93** (0.29)</td>
<td>−0.77* (0.30)</td>
<td>−0.59# (0.32)</td>
</tr>
<tr>
<td>Interviewer rating of respondent’s level of information about politics (0 = very low, to 4 = very high; ordered logit; 1998 CS; 367)</td>
<td>0.80** (0.30)</td>
<td>−0.88** (0.25)</td>
<td>−0.06 (0.20)</td>
<td>−0.37# (0.22)</td>
<td>−0.07 (0.24)</td>
</tr>
<tr>
<td>Political knowledge (number of items answered correctly, 0 to 5; ordered logit; 2004 CS; 807)</td>
<td>0.41** (0.12)</td>
<td>−0.39*** (0.11)</td>
<td>−0.18# (0.10)</td>
<td>−0.26* (0.11)</td>
<td>−0.02 (0.12)</td>
</tr>
<tr>
<td>Political knowledge (coded as above; ordered logit; 2005 NJS; 1,134)</td>
<td>0.95*** (0.17)</td>
<td>−0.58** (0.18)</td>
<td>−0.31* (0.15)</td>
<td>0.09 (0.17)</td>
<td>−0.22 (0.17)</td>
</tr>
<tr>
<td>Interviewer rating of respondent’s level of opinionation (0 = very low, to 4 = very high; ordered logit; 1998 CS; 367)</td>
<td>0.77* (0.31)</td>
<td>−0.37 (0.25)</td>
<td>0.60** (0.20)</td>
<td>−0.28 (0.22)</td>
<td>0.06 (0.24)</td>
</tr>
<tr>
<td>Interviewer rating of respondent’s level of interest in politics (0 = very low, to 4 = very high; ordered logit; 1998 CS; 367)</td>
<td>1.01** (0.31)</td>
<td>−0.68* (0.26)</td>
<td>0.07 (0.19)</td>
<td>−0.12 (0.22)</td>
<td>−0.29 (0.24)</td>
</tr>
<tr>
<td>Total Significant Effects (sum of effects significant across 14 tests at p &lt; 0.05, p &lt; 0.10)</td>
<td>11.11</td>
<td>6.8</td>
<td>8.10</td>
<td>3.5</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Note: Cell entries are coefficient estimates for models in which variables in Column 1 were regressed on variables in Columns 2–6, along with controls for age, education, race and sex. ***p < 0.001; **p < 0.01; *p < 0.05; #p < 0.10.
Collectively, these results reveal personality to be comparable to demographics and to fundamental political predispositions in two important manners. First, personality, like these other classes of variables, almost always matters for the dependent variables of interest to students of political behaviour. But, secondly, much as no individual demographic attribute always matters for politics, we have seen that no individual facet of personality influences all aspects of political behaviour. Openness to experience and conscientiousness produced twenty-three and seventeen effects significant at the 0.05 level, versus from ten to thirteen such effects for the remaining three Big Five factors. This general balance across the Big Five corroborates Winter’s advice that students of political behaviour should turn to comprehensive rather than narrow depictions of personality. Ultimately, of course, the most important lesson in Tables 2–4 is that critical aspects of political behaviour hinge partly on personality. Strong, consistent links between personality and politics have been identified for many of the most familiar variables in the study of mass politics, including partisanship, ideology, presidential approval, internal efficacy, trust, participation in local politics, political discussion, opinionation and political knowledge.

CONCLUSIONS

Whenever a field pushes at its borders to incorporate insights from another discipline, obstacles are certain to be confronted. Our effort to capitalize on the most recent advances in personality psychology demonstrates this challenge, but also reveals the promise that such interdisciplinary research may hold. The application of the Big Five to political science is not expected to offer a perfect, seamless fit. The Big Five are not the only way to conceptualize or measure personality, nor are the five factors necessarily of equal importance to one another in the realm of political phenomena. However, the framework affords an excellent starting point for the systematic inclusion of personality variables in models of social behaviour and is unprecedented in its reliability across cultures, contexts and measurement instruments.

It is in the link with other disciplines, such as political science, that the Big Five model becomes especially interesting, outside of its mere ability to catalogue and inventory differences in attributes. In this sense, the field of psychology, not just political science, benefits when frameworks such as the Big Five inform research across disciplines. In psychology, early research on the Big Five focused largely on construction of item inventories and on demonstrations that the Big Five structure could be identified across a wide array of contexts. Less progress has been made in exploring the significance of variance in personality for social attitudes and behaviour, and yet it is precisely this sort of inquiry that will establish the practical utility of the Big Five. Hence, by linking the Big Five to various dimensions of citizen politics, the present study has shed new light on both the antecedents of political behaviour and the tangible importance of the Big Five model.

Saucier and Goldberg note that not each of the five factors is expected to be equally relevant to every behaviour, but rather that some domains should emerge as particularly important in specific contexts. This is precisely what we find. One or more of the Big

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75 This, of course, is partly a consequence of the dependent variables under consideration. For example, had the array of tests included fewer measures of political attitudes and more indicators of political participation, extroversion would have fared as well as, or better than, openness to experience and conscientiousness.

76 Saucier and Goldberg, ‘The Language of Personality’.
Five factors mattered for every aspect of citizen politics we considered – political attitudes and predispositions, political behaviour and exposure to political information. Moreover, personality effects were identified in all but a handful of the models we estimated. But while personality as a whole exerted a significant effect time after time, the facets of personality that influenced political behaviour differed depending on the phenomena in question. The Big Five factors all produced multiple significant effects, a collective result that speaks clearly to the value of modelling personality via a comprehensive framework.

If the ultimate goal of any science is to contribute to an accumulation of knowledge on a subject, it is desirable that the community at large share a set of measures and references. Without a systematic and consistent instrument for the definition and measure of personality, researchers across programmes lose one another as valuable assets. And as a discipline, we suffer a setback in our ability to generalize or relate findings to other contexts. The once hodgepodge field of personality research in psychology has come together in part around the Big Five, and the Big Five framework provides such an opportunity for political science as well. Independent researchers need not start from scratch in conceptualizing and designing instruments for the measure of individual differences. The Big Five apply equally to elite and mass populations; the framework is reliable, efficient and affordable to administer; and the variables fit neatly within existing models of political phenomena. Further, with decades of published empirical backing, research programmes that incorporate the Big Five gain legitimacy through association, and contribute to a strong and growing body of existing literature.

Several tangible matters warrant comment. First, we do not mean to suggest that five-factor approaches are the final word on personality. Refinements of these frameworks are to be expected, and replacements certainly are conceivable. But these approaches do offer viable and thoroughly explored foundations for incorporation of traits in research on political behaviour. As such, they already very clearly have developed to the point where they can inform applied research. Secondly, as to how personality data might be acquired, it is our hope that efforts to measure personality will not be relegated to the occasional specialized survey with focus on personality. Semantic differential items are highly efficient to administer, and thus a simple ten-item battery such as the one we included on the 2004 CS can be added to most telephone surveys at very little cost.

Thirdly, although we have examined a wide range of dependent variables, it warrants emphasis that present findings only hint at the value of attention to personality in research on political behaviour. Increasingly, research on political behaviour recognizes that individuals vary in their susceptibility to political processes. It follows that attention to combinations of variables is needed to unpack these individual differences. With focus on personality, one approach is to explore interactive combinations of the Big Five. For instance, the political effects of extroversion may differ for extroverts who are high rather than low in conscientiousness. Likewise, the effects of other determinants of political behaviour may vary as a function of personality. For example, the strong proclivity of extroverts towards political discussion and opinionation gives rise to the plausible hypothesis that other predictors of these phenomena may operate predominantly on introverts. Countless such conditional effects are easily imagined. Hence, explanations of political behaviour centred primarily on predictors other than personality may gain considerable additional nuance if analysts give careful attention to the possibility that individuals’ traits may magnify or constrain the effects of other processes.

The obstacles to adopting the Big Five in political science are small compared with the past obstacles we have faced so far as a discipline in our attempts to measure and
incorporate personality. The present study is both a demonstration of the possibilities of the Big Five in research on political behaviour, and an invitation to political scientists to explore how these variables speak to their own research agendas. We know that personality matters; the new generation of models offers us tools to investigate more about where, when and why it does so.
Statewide Differences in Personality Predict Voting Patterns in 1996–2004 U.S. Presidential Elections

Peter J. Rentfrow, John T. Jost, Samuel Gosling & Jeffrey Potter

Abstract: Political regionalism is commonly attributed to differences in historical settlement patterns, social class, and racial diversity. This book provides evidence for the importance of another factor—state-level personality—in understanding regional differences in political ideology. Drawing on research in personality and social psychology, the chapter proposes that geographical differences in voting patterns partially reflect differences in the psychological characteristics of individuals living in different states. Specifically examined are associations between state-level personality scores and voting patterns in the 1996, 2000, and 2004 U.S. Presidential elections. Results show that mean levels of openness and conscientiousness within a state predict the percentage of votes for Democratic and Republican candidates. Furthermore, state-level personality scores account for unique variance in voting patterns, even after adjusting for standard socio-demographic and political predictors. This chapter demonstrates the value of investigating psychological variables at a regional level to better understand political culture and ideology.

The results from the 2004 Presidential election revealed once again that the United States is politically divided. Many political pundits have offered explanations for the “Red state/Blue state divide” (how and why Republican-leaning and Democrat-leaning states differ), with most explanations focusing on discrepancies in social and economic conditions. Others have alluded to the importance of psychology for understanding the links between geographic location and political orientation. For example, Brooks (2004) has suggested that individuals “cluster in places where people share their cultural, aesthetic and, as it turns out, political values. So every place becomes more like itself and the cultural divides between places become stark” (p. A27). What is especially provocative about this account is that it implies that individuals across the country possess different psychological characteristics and that these characteristics are strong enough to influence how individuals in a state vote. A growing body of work in personality and social psychology suggests that there may be some truth to this claim.

In this article, we build on previous research on personality and political orientation in proposing that regional differences in voting patterns can be understood in terms of regional differences in modal personality. More specifically, we seek to integrate work in psychology, political science, and cultural geography to develop and investigate the hypothesis that regional differences in voting patterns reflect regional differences in the psychological characteristics of individuals living in those regions. After all, values, including political values, are in large part psychological in nature (e.g., Barnea & Schwartz, 1998; Feldman, 2003; Rokeach, 1973).

REGIONAL DIFFERENCES IN POLITICAL ORIENTATION

Regional differences in political orientation have existed for quite some time. Indeed, political
Geographers and scientists have shown that American regions and states have voted in fairly stable ways for over a century (Agnew, 1987a; 1987b; Bensel, 1984; Elazer, 1994; Heppen, 2003; Hero, 1998). Explanations for these differences generally emphasize regional differences in historical settlement patterns (Elazer, 1994), cultural and racial composition (Hero, 1998; Heppen, 2003), and local economic conditions (Heppen, 2003).

Elazer (1994), for example, argued that regional differences in political ideology are the result of historical settlement and immigration patterns. The synthesis of religion, politics, and culture brought by early settlers gave rise to different political subcultures, each of which regarded government as serving different functions. Three political subcultures identified in Elazer’s research are: individualistic, moralistic, and traditionalistic. The individualistic subculture is a result of the commercialism and social pluralism of the English, Eastern European, and Mediterranean immigrants to the North Mid-Atlantic and eventually the West Coast. In this subculture, the sole purpose of government is to maintain a healthy economy. The moralistic subculture is a product of the religious convictions of early Puritan, Jewish, and Western European settlers of New England (and later the Midwest and Northwest). This subculture considers government to be an instrument for achieving the greatest good for all individuals. The traditionalistic subculture is a result of the plantation agrarianism of the South and accepts a hierarchical social structure in which government is entrusted to uphold social order.

Others have emphasized the importance of ethnic diversity for regional voting patterns (Heppen, 2003; Hero, 1998). According to Hero (1998), class differences between majority and minority ethnic groups shape the political climate of a state. Racially homogenous regions (with high percentages of Whites) tend to have simple social structures and are concerned with community development. In contrast, racially heterogeneous regions (with high percentages of non-White minorities) tend to have more complex social structures and are concerned with maintaining social order and economic prosperity.

In an analysis of U.S. Presidential elections from 1892 to 2000, Heppen (2003) identified four fluid political regions that were differentiated according to the degree of social diversity, economic status, and political behavior: the East and West Coasts, Middle America, the Sun Belt, and the Capital. The Coastal states and Washington D.C. are historically liberal regions with large populations, high percentages of non-White residents, and relatively high per capita income levels. The Middle American and Sun Belt states are historically conservative regions with smaller populations, less cultural and racial diversity, and poorer economies in general.

Taken together, this research suggests that regional differences in political orientation can be understood in terms of the historical, social, and economic differences among regions. These regional differences in turn appear to moderate how individuals in those regions react to various political issues. This work is consistent with the notion that the psychological characteristics of individuals (e.g., attitudes, beliefs, and values) inhabiting different regions affect local political preferences. Regional social climates may (a) attract individuals with similar personality characteristics and belief systems, and (b) increase the degree of similarity among inhabitants in a given area. It is therefore conceivable that regional differences in personality could inform our understanding of the Red state/Blue state divide.

REGIONAL DIFFERENCES IN PERSONALITY
Early investigations of geographic differences in personality attempted to provide explanations for the anti-Semitism displayed before and during World War II. This work spawned several theories about the nature of national differences in personality or character (e.g., Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Lewin, 1936; Peabody, 1985). For example, in *The Authoritarian Personality*, Adorno and colleagues (1950) sought to integrate dynamic personality theory with the study of social attitudes and political ideology. They identified an authoritarian syndrome, which was defined in terms of conservatism, intolerance of ambiguity, narrow-mindedness, conventionalism, and obedience to authority. This work was very influential, and sparked numerous international projects that revealed national differences in authoritarianism among Americans, Germans, Japanese, and Russians (e.g., Inkeles, Hanfmann, & Beier, 1958).

Although work on national character was a useful starting point for understanding cross-national differences, most of this research treated entire nations as homogenous entities. It was assumed that individuals within various regions of a country were more similar to each other than to individuals in other countries (Bock, 2000). This work failed to take into account the possibility that individuals living in different regions of the same country could be quite different from one another. There has, however, been some research in social psychology on regional differences within countries. This research has focused on regional differences in self-concept (Vandello & Cohen, 1999), well-being (Plaut, Markus, & Lachman, 2002), and violence (Cohen, 2001; Nisbett & Cohen, 1996). For example, work by Vandello and Cohen (1999) suggests that regional differences exist in individualism and collectivism, such that collectivism is highest in the Southern states and lowest in the Mountain and Great Plains states. Moreover, research by Cohen (e.g., Cohen, 2001; Nisbett & Cohen, 1996) reveals that the Southern United States embraces a culture of honor, in which individuals are willing to resort to violence to protect their reputation.

Perhaps the first study to directly examine regional variation in personality within the United States was conducted by Krug and Kulhavy (1973). Their findings revealed striking differences: individuals living in urban, industrial regions (Northeast, Midwest, and West Coast) were significantly higher in “creative productivity” (defined in terms of creativity, imagination, intelligence, tolerance, and unconventionality), than were those living in rural regions (Great Plains and South). Midwesterners appeared to be higher in traits associated with conscientiousness (e.g., hardworking) than were people in the West Coast and Southwest. Finally, individuals living in the Northeast were higher in extraversion (defined by traits such as urgency and energy) than were individuals living in the Western Mountain states.

Krug and Kulhavy (1973) attributed geographic personality differences to immigration patterns, but the emergence and persistence of such differences are likely due to a myriad of factors (Rentfrow, Gosling, & Potter, 2008). Historical immigration patterns could have caused regional differences in personality to emerge by way of genetic and social founder effects. Specifically, the genetic predispositions of immigrants who settled in particular regions could have restricted the variety of personality traits available in the gene pool, which, in turn, could have caused certain regions to develop disproportionate numbers of individuals with certain personality traits (Hofstede & McCrae, 2004). Moreover, the intellectual histories, customs, lifestyles, and daily practices of early settlers could have contributed to the establishment of certain social norms within particular regions, which, in turn, could have influenced the prevalence of particular behavioral tendencies and personality traits within the region (Hofstede & McCrae, 2004;
Kitayama, Ishii, Imada, Takemura, & Ramaswamy, 2006). Thus, it is plausible that the genetic predispositions and social customs of early immigrants could have both caused regional differences in personality to emerge. But once those differences do emerge, how might they persist over time?

Three mechanisms that probably have the biggest impact on maintaining regional differences are self-selection, social influence, and environmental influence. First, regional personality differences could persist as a result of individuals migrating to places that satisfy and reinforce their psychological needs. For instance, open-minded individuals might move to cosmopolitan areas, where their needs for diversity and cultural stimulation are more easily met than in small-town environments. Similarly, members of minority groups might choose to live in regions where the residents are believed to be open-minded and tolerant of diversity. Support for this idea comes from work indicating that individuals seek out environments in which their attitudes, beliefs, and personalities are valued and shared by others (Buss, 1987; Florida, 2002; Swann, Rentfrow, & Guinn, 2002).

Second, regional differences could persist as a result of social influence. According to social dynamic influence, local clustering of attitudes and beliefs can occur when individuals engage in repeated social interaction with others (Bourgeois & Bowen, 2001; Latané, 1981). As a result, “attitudes become geographically clustered not because [people] choose to live with others who share common interests but rather as a result of social influence” (Bourgeois & Bowen, 2001, p. 434). For instance, the degree of cultural diversity in a region could influence the attitudes that individuals in that region have about different racial and ethnic groups (e.g., Allport, 1954). Indeed, similar arguments have been made about the geographic clustering of political attitudes (Huckfeldt & Sprague, 1995). Similarly, regional psychological characteristics, such as industriousness or creativity, could influence various sociodemographic characteristics of a region, like unemployment rates and median income.

Third, regional differences in personality could persist as a result of environmental influence. Specifically, aspects of the physical environment influence the types of activities (e.g., professions, leisure pursuits) in which individuals can engage, which could influence various psychological characteristics of individuals in that region. For example, urbanization in general and neighborhood characteristics in particular—housing quality and proximity to basic necessities like hospitals and markets—appear to influence rates of depression over and above the effects of family income (Cutrona, Wallace, & Wesner, 2006). Thus, it is conceivable that certain environmental aspects of regions could cause specific psychological characteristics to persist there over time.

We are suggesting that the psychological, sociological, and environmental aspects of regions are mutually reinforcing and could each influence regional variation in a number of geographic social indicators, including political preferences. Self-selection, social influence, and environmental influence are three of the possible mechanisms that could create and sustain differences in regional characteristics that could, in turn, affect voting patterns. But what are the processes underlying the expression of personality at the geographic level? That is, how might regional variation in personality and voting patterns become linked?

In line with recent work by Rentfrow and colleagues (2008), it is possible that regional
differences in personality and political orientation could become linked through a series of dynamic processes. Specifically, the dominant personality characteristics in a region could have a direct, or additive, effect on the political views at the regional level. For instance, if a disproportionately large number of people in a region have personality traits associated with liberalism, then it is reasonable to suppose that there would be more votes cast for Democratic than Republican political candidates, simply because there are more people with a predisposition for liberalism. Yet, it is also conceivable that the psychological characteristics dominant in a place could produce a unique psychosocial environment in which liberal values are the norm. If so, then that psychosocial environment could, in turn, affect the political views of other people in the environment who do not possess the modal personality traits. But what are the personality traits that could play a role in this dynamic process?

Figure 13.1 Mutual reinforcement between regional sociodemographic characteristics and regional psychological characteristics and their influence on statewide voting patterns.
PERSONALITY AND POLITICAL ORIENTATION

The study of personality and politics goes back at least three-quarters of a century, and may be said to originate if not with Freud then with the publication of Lasswell’s (1930) Psychopathology and Politics. This work, like many that followed it, defended a psychoanalytic theory of personality structure as emanating largely from unconscious drives and motivational conflicts. From this perspective, political ideology was generally regarded as a result of early life experiences and unconscious motives. Although psychoanalytic contributions were influential and popular (e.g., Adorno et al., 1950; Erikson, 1950; Lane, 1962; Smith, Bruner, & White, 1956; Wolfenstein, 1967), they often lacked conclusive scientific evidence and were open to a wide range of conceptual and methodological criticisms (see, e.g., Greenstein, 1992).

More recent applications of personality theory to political science have been more directly based on quantifiable measures of personality and political variables. Many of these studies focused on personality differences between liberals (or leftists) and conservatives (or rightists) (e.g., Costantini & Craik, 1980; Di Renzo, 1974; Elms, 1976; McClosky, 1958; Milbrath, 1962; Sidanius, 1985; St. Angelo & Dyson, 1968; Tetlock, 1983, 1984). Traits under investigation ranged from self-control, restraint, negativity, endurance, and order (higher among conservatives) to open-mindedness, impulsivity, tolerance of ambiguity, and integrative complexity (higher among liberals). This work was extremely important because it confirmed suspicions in both psychology and political science that personality traits underlie support for specific types of ideological and policy outcomes (see also Jost, Glaser, Kruglanski, & Sulloway, 2003a, 2003b).

However, this work began to fade from view in political psychology, largely because of the isolated and fragmented nature of personality psychology at the time. As noted by Caprara, Barbaranelli, and Zimbardo (1999), “in the absence of a general theory of personality or consensual agreement about its standardized assessment, research focused on multiple individual constructs without being guided by an integrated conceptual vision” (p. 176).

It was not until the 1990s that a suitable conceptual and empirical framework for classifying and measuring personality dimensions emerged and began to garner scientific consensus. Factor analyses of large numbers of trait ratings made by native speakers of several different languages provided evidence for the existence of five broad personality dimensions that can be reliably measured and used to predict behavior in multiple situations (e.g., Goldberg, 1992; John & Srivastava, 1999; McCrae & Costa, 1999; Ozer & Benet-Martínez, 2006; Wiggins, 1996). Different authors prefer slightly different terms for the “Big Five” dimensions, but the most popular labels spell the acronym OCEAN: openness (also referred to as culture or intellect), conscientiousness, extraversion (or energy), agreeableness, and neuroticism (or emotional instability). In the remainder of this article, we develop and investigate the hypothesis that regional differences in the prevalence of particular personality styles (as measured in terms of the Big Five dimensions) are related to differences in political orientation (as reflected in voting patterns).

THE FIVE-FACTOR MODEL OF PERSONALITY AND POLITICAL ORIENTATION

Based on research in personality and social psychology, the Big Five dimension that is most likely to predict voting patterns is openness (Carney, Jost, Gosling, & Potter, 2008; Jost et al., 2003a; McCrae, 1996). Numerous studies suggest that self-described political liberals tend to
score higher than conservatives on measures of stimulus-seeking and preferences for novelty, creativity, curiosity, imaginativeness, and broad-mindedness—all of which are aspects of openness (e.g., Barnea & Schwartz, 1998; Caprara et al., 1999; Feather, 1979; Gosling, Rentfrow, & Swann, 2003; Levin & Schalmo, 1974; Peterson, Smirles, & Wentworth, 1997; Riemann, Grubich, Hempel, Mergl, & Richter, 1993; Trapnell, 1994; Van Hiel, Mervielde, & De Fruyt, 2004). In a meta-analytic review of psychological predictors of political orientation, Jost and colleagues (2003a) estimated, on the basis of 21 studies, that the overall effect size (r) for the relation between openness and political liberalism was between .28 and .35, assuming a 95% confidence interval (CI). The sheer consistency of the research findings led McCrae (1996) to conclude that “a case can be made for saying that variations in experiential Openness are the major psychological determinant of political polarities” (p. 325, emphasis in original).

The conscientiousness personality dimension is associated with being organized, self-disciplined, orderly, efficient, dependable, responsible, hard-working, persistent, and likely to engage in rule-following behavior. These traits are reminiscent of Silvan Tomkins’ (1963) depiction of the “normative orientation,” which he associated with conservative and right-wing personality styles in general. Although fewer studies have examined conscientiousness than openness, some evidence suggests that it, too, is related to political orientation (e.g., Carney et al., 2008). Using both short and long versions of Big Five scales, Gosling and colleagues (2003) obtained weak but significant positive correlations between conscientiousness and self-reported conservatism (with r values ranging from .06 to .11) and weak but significant negative correlations between conscientiousness and self-reported liberalism (ranging from –.08 to –.13). Similar results were obtained in a study by Caprara and colleagues (1999) with regard to voting behavior in the 1994 Italian national election; people who scored higher on conscientiousness were slightly more likely to support the center-right party than the center-left party. Caprara, Barbanelli, Consiglio, Picconi, and Zimbardo (2003) administered personality questionnaires to Italian members of regional, national, and European parliaments and found that center-right politicians scored higher on conscientiousness than did center-left politicians.

Caprara and colleagues (1999, 2003) also found that center-right politicians and voters scored higher on energy or (extraversion) than did center-left politicians and voters. It is conceivable that such differences reflect varying degrees of self-confidence, especially in light of the electoral success of the rightist National Alliance party headed by Silvio Berlusconi and Gianfranco Fini in Italy over the last several years. In the American context, Gosling and colleagues (2003) obtained no association between extraversion and political orientation. Insofar as this personality dimension captures how active, energetic, dynamic, enthusiastic, enterprising, and happy a person seems to be, it may be relevant to political success, although it may not be consistently related to left- versus right-wing differences in personality across time and place. In any case, this is an empirical question.

No consistent evidence indicates that the other two Big Five dimensions of personality, agreeableness and neuroticism (or emotional instability), are associated with political orientation per se. However, Gosling and colleagues (2003) did find that agreeableness was negatively correlated with scores on Pratto, Sidanius, Stallworth, and Malle’s (1994) social dominance orientation (SDO), which measures a preference for group-based inequality that tends to be associated with other right-wing attitudes (see Chapter 12). This suggests that agreeableness, which involves warmth, kindness, trust, generosity, sympathy, and unselfishness, might be more
prevalent among liberals than conservatives. Evidence also indicates that voters’ perceptions of
candidates are strongly affected by their perceptions of candidates’ levels of agreeableness (as
well as their levels of extraversion), regardless of whether those candidates are left- or right-wing
(Caprara et al., 2002).

**Neuroticism** refers to emotional instability and is associated with anxiety, moodiness, and an
inability to cope with stressful situations. Jost and colleagues (2003a) found that conservatives
were more likely than liberals to worry about potential losses and to be sensitive to threat-related
stimuli, but the effect size for this relation was considerably weaker when fear of threat and loss
was measured in terms of neuroticism. Studies by Caprara and colleagues (1999, 2003) in Italy
yielded no evidence that neuroticism was associated with preferences for center-left versus
center-right political parties and candidates, but it may be relevant that third-party candidates
were excluded from consideration in these studies. Effects of neuroticism may be more likely to
emerge in the context of a wider range of political views, including those of third-party
candidates. To assess this possibility, the present study included data on the percentage of votes
cast for third-party candidates (i.e., Reform and Green party) as well as for Democratic and
Republican candidates.

By integrating previous research on personality and political orientation with recent observations
concerning the geographic clustering of political attitudes, a number of novel research questions
can be generated and addressed. For example, are residents of politically liberal states higher, on
average, in openness than residents of conservative states? Are residents of conservative states
higher in conscientiousness than residents of liberal states? And, most critically, do statewide
differences in personality explain voting patterns above and beyond standard sociological and
political variables?

**OVERVIEW OF THE PRESENT RESEARCH**

The purpose of the present research is to determine whether regional differences in political
orientation reflect differences in the personalities of the individuals living in a particular region.
To investigate this issue, we examined connections between state-level personality scores on each
of the Big Five personality dimensions and the percentage of votes cast for Democratic,

Our predictions concerning the correspondence between state-level personality scores and voting
patterns were based largely on extrapolations from research undertaken at the individual level of
analysis (e.g., Caprara et al., 1999; Gosling et al., 2003; Jost et al., 2003a, 2003b; McCrae, 1996).
As summarized earlier, previous studies have identified clear links between openness and
conscientiousness and political orientation. The evidence connecting extraversion, agreeableness,
and neuroticism to political orientation is less clear. Therefore, we expected that state-level
openness and conscientiousness scores would significantly predict state-level voting patterns, but
we made no explicit predictions about the other three personality dimensions. More specifically,
we hypothesized that states with populations that are relatively high in openness and low in
conscientiousness would be more likely to vote for Democratic candidates (Bill Clinton in 1996,
Al Gore in 2000, and John Kerry in 2004) and less likely to vote for Republican candidates (Bob
Dole in 1996 and George W. Bush in 2000 and 2004). Given the dearth of available research on
the psychological correlates of preferences for independent and third-party candidates, we did not
make explicit predictions about how state-level personality would be related to preferences for Ross Perot in 1996 and Ralph Nader in 2000 and 2004. However, given that Perot seemed to appeal most to right-of-center voters, whereas Nader mainly appealed to left-of-center voters, we expected the patterns of personality correlates to match those of the Republican and Democratic candidates, respectively.

Although we expect statewide personality differences to account for significant proportions of variance in voting patterns, it is reasonable to assume that the effects will be weaker after adjusting for standard sociodemographic characteristics and past election results. Consistent with the research literatures on electoral coalitions, migration patterns, political regionalism, and social influence (e.g., Axelrod, 1972, 1986; Bourgeois & Bowen, 2001; Brooks & Manza, 1997; Cohen, 2001; Erikson, Wright, & McIver, 1993; Heppen, 2003; Hero, 1998; Huckfeldt & Sprague, 1995; Latané, 1981; Vandello & Cohen, 1999), it is to be expected that variables like education, income, social class, ethnic diversity, proportion of state population residing in large cities, and past voting behavior could be related to both the personalities and political preferences of individuals living in a given region. To assess whether the relations between state-level personality and political preferences persist even after adjusting for such factors, we examined three models on regional voting patterns. First, the state-level personality model included the Big Five personality estimates for each state. Second, the sociodemographic model included for each state the median family income, percentage of residents with at least a college degree, percentages of white- and blue-collar workers, percentage of Black residents, and proportion of a state’s population living in cities with 1 million or more residents (U.S. Census, 2000). Third, the political model included the change in state-wide voting patterns from the two elections preceding the one under investigation (e.g., the difference in the Democratic vote from 1988 to 1992 to predict voting outcomes in 1996; Leip, 2005). Together, these data permitted analyses of the independent and shared contributions of each model on state-level voting patterns, thereby enabling us to determine whether state-level personality accounted for unique variance in political preferences when variables from the other models were held constant.

Testing the predictions required that we obtain reliable and representative personality estimates for each state. We therefore needed a methodology that would (a) provide a sufficiently large sample to investigate our hypotheses, (b) enable us to collect equivalent data from individual respondents around the country, and (c) provide a diverse sample of respondents that would be reasonably representative of the population of the United States. To achieve these aims, we decided to use the Internet as the vehicle for collecting personality data. Research on web-based studies indicates that Internet users may not be perfectly representative of the general population (Lebo, 2000; Lenhart, 2000), but Internet-based samples are much more diverse than convenience samples commonly used in social science research (Birnbaum, 2004; Gosling, Vazire, Srivastava, & John, 2004). Furthermore, researchers typically obtain very similar results across Internet and non-Internet samples, especially with regard to personality variables (e.g., Srivastava, John, Gosling, & Potter, 2003).

The Internet is still a rather novel methodological tool, and no other studies have used this methodology to examine regional differences in personality. Therefore, we were concerned that the findings might not be reliable. Our concern was particularly acute for the early analyses because, in 1999, the Internet was not nearly as widely used as it is today (Lebo, 2000; Lenhart, 2000). To determine whether the findings were generalizable, we gathered two independent
personality samples at two different time periods and sought to replicate the findings across samples. Data for Sample 1 were collected from January 1999 to December 2000, and data for Sample 2 were collected from January 2003 to December 2004. Big Five state-personality estimates from Sample 1 were used to predict voting patterns in the 1996 and 2000 elections, and estimates from Sample 2 were used to predict voting patterns in the 2004 election. This approach enabled us to determine whether the effects of state-level personality on voting patterns would replicate across the independent samples and, simultaneously, to evaluate the viability of our methodology.

CROSS-LEVEL ANALYSIS CONSIDERATIONS

When working with variables that can be measured at multiple levels of analysis (e.g., at the levels of individuals and states), researchers may be tempted to generalize findings from one level to another. However, although findings at one level can match findings at another level, the different levels are logically independent, so that generalizations across levels are not always warranted. The well-known ecological fallacy refers to one class of such mistakes, in which aggregate-level findings are incorrectly generalized to individual-level phenomena (Duncan, Cuzzort, & Duncan, 1961; Robinson, 1950; Shively, 1969). For example, Robinson (1950) showed that the ecological correlation between the percentage of foreign-born state residents and the percentage of illiterate state residents was -.53, but that the individual correlation between foreign-born status and illiteracy was .12. In this example, the ecological correlation suggests that illiteracy rates are higher in states where there are fewer foreign-born residents than native-born residents; however, it does not follow that illiteracy is higher among native-born individuals than foreign-born individuals. Indeed, the individual correlation reveals just the opposite. A similar, albeit less common error is the individualistic fallacy, in which findings from individual-level analyses are assumed to generalize to aggregate-level analyses; for these reasons, it cannot be assumed that the relationships between personality and political ideology identified at the individual level will generalize to state-level analyses. Of course, findings at one level may in fact generalize to another level, and they often do; the ecological and individualistic fallacies merely highlight the fact that the two levels are logically independent.

The decision to rely on ecological or individual levels of analysis rests primarily on how researchers intend to use the variables and the level of analysis they are most concerned with describing (Shively, 1969). The present research is concerned with the connection between regional personality and political orientation at the state level. Therefore, we used aggregate-level data to examine the relationship between regional personality and political orientation at the aggregate level. We merely used previous individual-level findings to identify promising candidate traits for our analyses.

Method

Procedure

The personality data were part of an Internet personality project, a personality study of volunteers assessed over the World Wide Web (for details see Gosling et al., 2004; Srivastava et al., 2003). The website used is a noncommercial, advertisement-free website containing a variety of personality measures. Potential respondents could find out about the site through several channels, including search engines or unsolicited links on other websites. For both samples,
respondents volunteered to participate in the study by “clicking” on the personality test icon and were then presented with a series of questions about their personalities, demographics, and state of residence. After responding to each item and submitting their responses, participants were presented with a customized personality evaluation based on their responses to all the items.

Participants
Only participants indicating that they lived in the United States were included in the analyses. Data for Sample 1 were available for 238,709 participants (58% female); the average age was 24.1 years ($SD = 9.6$ years). Of those who disclosed information about their ethnicity, 11,580 (4.9%) respondents were Asian; 7,651 (3.2%) were African American; 5,073 (2.1%) were Latino; 3,974 (1.7%) were Middle Eastern; 201,148 (84.8%) were White; and 7,700 (3.2%) indicated “Other.” Data for Sample 2 were available for 273,685 participants (59% female); the average age was 24.9 years ($SD = 10.7$ years). Of those who disclosed their ethnicity, 13,018 (4.8%) respondents were Asian; 15,667 (5.8%) were African American; 16,025 (5.9%) were Latino; 2,711 (1.0%) were Middle Eastern; 207,849 (76.8%) were White; and 15,315 (5.7%) indicated “Other.”

Measures

Respondent location
Given our interest in the relations between state-level personality and voting patterns, respondents in both samples were asked to indicate the state in which they currently reside. Respondents could choose from a list of all 50 states as well as Washington, D.C.

Personality
We used the Big Five Inventory to assess personality (BFI; John & Srivastava, 1999) in both samples. The BFI consists of 44 short statements designed to assess the prototypical traits defining each of the Big Five dimensions. Using a 5-point Likert-type rating scale with endpoints at 1 (Disagree Strongly) and 5 (Agree Strongly), respondents indicated the extent to which they agreed with each statement. The BFI scales have shown a robust factor structure, substantial internal and temporal reliability, and considerable convergent and discriminant validity with other Big Five measures (Benet-Martinez & John, 1998; Gosling et al., 2003; John & Srivastava, 1999).

Voting patterns
To assess regional political preferences, we gathered voting data for each of the 50 states and Washington, D.C., from Dave Leip’s Atlas of U.S. Presidential Elections, an online database consisting of Presidential election results obtained from publications by official election agencies within each state (i.e., Secretary of State offices, State Board of Election offices, Congressional Quarterly, and the U.S. National Archives and Records Administration). For the 1996, 2000, and 2004 Presidential elections, we obtained data on the percentage of votes cast in each state for major party candidates (Clinton, Dole, Gore, and Bush) and third-party candidates (Perot and Nader).

Sociodemographic characteristics
To determine the unique contribution that state-level personality has on voting over and above sociodemographic variables, we gathered relevant data for each state from the U.S. Census
Bureau (2000). On the basis of previous research on political regionalism and political coalitions (Agnew, 1987a; Axelrod, 1972, 1986; Brooks & Manza, 1997; Heppen, 2003; Hero, 1998; Shelly, Archer, Davidson, & Brunn, 1996), which has identified several robust sociodemographic predictors of state-wide voting patterns, we obtained data on median family income, percentage of the population 25 years and older with at least a college degree, percentage of working-aged individuals with white-collar jobs, percentage of working-aged individuals with blue-collar jobs, percentage of population that is African American, and proportion of the population living in a city with one million or more residents.

Sample Characteristics, Reliability, and Data Aggregation

Sample characteristics
To ensure that each state was fairly represented in terms of geographic region, we correlated the number of respondents from each state in Sample 1 with the population for each state using data from the U.S. Census Bureau (2000). The number of respondents from each state in our sample was directly proportional to the population of each state, \( r = .98 \).

Past research on Internet-based surveys suggests that many ethnic minority groups are under-represented on the Internet (e.g., Lebo, 2000; Lenhart, 2000). To determine whether our sample under-represented particular ethnic groups, we compared the ethnic population of respondents from our Internet sample with the ethnic population of residents in each of the 50 states. Specifically, we correlated the percentage of respondents from each ethnic group in the Internet samples with the percentage of the population of that group within each state. For example, we correlated the percentage of Asian respondents from each state with the actual percentage of Asians in each state. These analyses indicated that our Internet-based samples were remarkably representative of the population at large. Specifically, the correlations for Samples 1 and 2, respectively, were: .99, .97 for Asians; .57, .93 for African Americans; .96, .96 for Latinos; and .98, .87 for Whites. Thus, with the exception of African Americans in Sample 1, the ethnic composition of our samples matched almost perfectly the ethnic populations in each state.

Scale reliabilities
Reliabilities of the Big Five personality dimensions at the individual and state levels were of particular interest in this study. If there were problems administering the BFI on the web (e.g., random or unreliable responses), the internal reliabilities of the five scales would be low. Moreover, because we were developing personality estimates for each state using the BFI, it was important to determine whether the personality scales were reliable at the state level. We found that the scales were reliable across both levels and samples, with alpha (\( \alpha \)) reliabilities very similar to those reported in previous research (see John & Srivastava, 1999). Specifically, the coefficient \( \alpha \) at the individual level for Samples 1 and 2, respectively, were: .79 and .70 for openness; .82 and .82 for conscientiousness; .86 and .85 for extraversion; .80 and .80 for agreeableness; and .83 and .83 for neuroticism. The coefficient \( \alpha \) at the state level for Samples 1 and 2, respectively, were: .95 and .94 for openness; .86 and .91 for conscientiousness; .88 and .88 for extraversion; .85 and .91 for agreeableness; and .94 and .89 for neuroticism.

Data aggregation
Given that our Internet samples accurately represented each of the 50 states in terms of both overall and ethnic population and that state-level responses to the BFI were reliable, it was
reasonable to aggregate participants’ responses to develop personality estimates for each state. For Samples 1 and 2, we scored the five personality scales at the state level using the unit-weighted scale scores of every respondent from each state.

**RESULTS**

Our primary objectives were to determine: (a) whether state-level personality was related to the percentage of votes cast for each Presidential candidate in each election, and (b) the extent to which state-level personality accounted for voting patterns after adjusting for the effects of sociodemographic and political variables. We addressed these issues in a series of multiple regression analyses that examined the independent and combined effects of three models (state-level personality, sociodemographic, and political) on the percent of votes cast for each candidate in each election period. Because we were concerned with the degree of covariance between state-level personality and political orientation that arises through self-selection and social influence processes, $r$ was selected as the measure of effect size. All numerical variables were standardized prior to conducting analyses.

**Democratic Candidates**

*State-level personality model*

Analyses of the percentages of Democratic votes cast in the three elections revealed that the state-level personality model shared significant proportions of variance with votes cast for Clinton (in 1996), Gore (in 2000), and Kerry (in 2004) ($R = .634, .682, and .718$, respectively). As shown in the top portion of Table 13.1, the partial regression coefficients for each of the Big Five personality dimensions were strikingly similar across all three elections. As hypothesized, openness was positively related to the percentage of votes cast for each of the Democratic candidates, and it accounted for the most variance. Conscientiousness was a significant negative predictor of votes cast for each candidate. In addition, extraversion was a positive predictor of the percentage of votes cast for the three Democratic candidates. Although we made no specific predictions about the effects of neuroticism, it significantly predicted the percentage of votes for Kerry (but not for Clinton or Gore).

*Sociodemographic model*

The sociodemographic model also shared substantial proportions of variance with the percentages of votes cast for Democratic candidates ($R = .730, .772, and .755$, for Clinton, Gore, and Kerry, respectively). As can be seen in the middle portion of Table 13.1, the percentage of blue-collar workers accounted for more variance than any of the other sociodemographic predictors and was negatively related to votes for each of the candidates. Two variables that accounted for slightly smaller proportions of the variance were percentage of residents with college degrees and percentage of African Americans, which were both positively related to votes in each election.

**Political model**

The political model included a political behavior change variable, which was the difference between the percentage of votes for the Democratic candidate in the two previous elections (i.e., 1988 and 1992 to predict 1996 votes, 1992 and 1996 to predict 2000 votes, and 1996 and 2000 to predict 2004 votes). Analyses of the political model revealed that it shared substantial proportions of variance with votes for the three candidates ($R = .298$, .244, and .570, Clinton, Gore, and Kerry, respectively). The bottom portion of Table 13.1 shows that the changes in statewide Democratic votes in the two elections prior to those under investigation were significant positive predictors of the percentages of same-party votes in the 1996 and 2004 elections and a marginally significant positive predictor in the 2000 election.

**Comparison of the models**

Each of the three models accounted for significant proportions of variance in the percentage of votes for the Democratic candidates in all three elections. To determine whether state-level personality accounted for unique variance in voting patterns after adjusting for the effects of sociodemographic and political variables, we conducted a series of stepwise regressions comparing changes in the $R$ between the state-level personality model and each of the other two models.

We first examined the combined and unique effects of the state-level personality and sociodemographic models on the percentages of votes for each Democratic candidate. When combined, the two models shared 82%, 84%, and 85% of the variance in votes for Clinton, Gore, and Kerry, respectively. Comparisons of the changes in the $Rs$ showed that, even when the sociodemographic model was included, the state-level personality model still explained significant proportions of variance in the percentage of votes for Clinton ($\Delta R = .09, F(5, 39) = 3.479, p < .01$), Gore ($\Delta R = .07, F(5, 39) = 3.053, p < .05$), and Kerry ($\Delta R = .10, F(5, 39) = 4.340, p < .01$).

We next examined the unique and combined effects of the state-level personality and political models. When both models were combined, they accounted for 64%, 69%, and 84% of the variance in votes for Clinton, Gore, and Kerry, respectively. Analyses of the proportions of variance accounted for by the state-level personality model when the political variable was controlled revealed that it accounted for significant proportions of unique variance in the percentage of votes cast for Clinton ($\Delta R = .34, F(5, 44) = 4.697, p < .01$), Gore ($\Delta R = .45, F(5, 44) = 7.028, p < .001$), and Kerry ($\Delta R = .27, F(5, 44) = 11.089, p < .01$).

**Republican Candidates**

State-level personality model. Analyses of the percentages of Republican votes cast in the three elections revealed that the state-level personality model shared significant proportions of variance with votes cast for Dole (in 1996) and Bush (in 2000 and 2004) ($R = .614$, .672, and .728, respectively). As shown in the top portion of Table 13.2, the patterns of relations between each of the Big Five personality dimensions and the percentage of Republican votes cast in each election were virtually identical across the three elections. The partial regression coefficients revealed that openness again accounted for the most variance, but this time it was negatively related to votes cast for each candidate. Conscientiousness was a significant and positive predictor of votes for each of the Republican candidates. Extraversion was a significant negative predictor of the
percentages of votes cast for Dole and Bush. Neuroticism was a significant (negative) predictor of the percentage of votes cast for Bush in 2004 but not in 2000. Thus, the findings from our analysis of Republican candidates were precisely opposite to those obtained in the analysis of Democratic candidates.

Insert Table 13.2. Multiple regression analyses of the state-level personality, sociodemographic, and political models for the Republican Presidential candidates in the 1996, 2000, and 2004 elections.

**Sociodemographic model**
The sociodemographic model significantly predicted the percentage of votes for the Republican candidates in all three elections ($R = .634, .776, \text{ and } .754$, respectively). As shown in the middle portion of Table 13.2, the percentage of blue-collar workers accounted for significant proportions of variance, and was positively related to the percentage of votes for the Republican candidates in each election. Percentage of residents with college degrees was the only other variable that accounted for substantial proportions of variance, and was negatively related to votes for Republican candidates.

**Political model**
The bottom portion of Table 13.2 shows that the political model accounted for significant proportions of variance in votes for Bush in 2000 and 2004 ($R = .622$ and $ .631$, 2000 and 2004, respectively), but not Dole ($R = .211$). In both 2000 and 2004, change in same-party votes was positively related to votes for Bush, but negatively related to votes for Dole in 1996.

**Comparison of the models**
Comparisons of the state-level personality and sociodemographic models indicated that, when both models were combined, they shared 77% of the variance with votes for Dole and 85% of the variance in votes cast for Bush in 2000 and also in 2004. Comparisons of changes in the $R$s showed that even after adjusting for sociodemographic variables, the state-level personality model still explained a significant proportion of variance in the percentages of votes for Dole ($\Delta R = .14, F (5, 39) = 3.855, p < .01$) and Bush in both 2000 ($\Delta R = .07, F (5, 39) = 3.232, p < .05$) and 2004 ($\Delta R = .10, F (5, 39) = 4.597, p < .01$).

When the state-level personality and political models were combined, they accounted for 66% of the variance in votes for Dole, 84% of votes for Bush in 2000, and 86% of Bush votes in 2004. Furthermore, analyses of the unique contribution of the state-level personality model indicated that it remained a significant predictor of votes for Dole in 1996 ($\Delta R = .45, F (5, 44) = 6.170, p < .001$) and Bush in 2000 ($\Delta R = .221, F (5, 44) = 9.900, p < .001$) and 2004 ($\Delta R = .226, F (5, 44) = 11.086, p < .001$). Overall, the portrait that emerged from our analyses of Republican voting patterns almost perfectly complemented the picture derived from the Democratic data.

**Third-Party Candidates**
Our analyses of third-party candidates focused only on the candidate who received the highest percentage of third-party votes in each of the three elections. Unfortunately, because there was
not always a Reform, Green, or Independent party candidate in the two consecutive elections preceding those under investigation, we were not able to compute political behavior variables for any of the third-party candidates. Therefore, we examined the independent, shared, and unique effects of the state-level personality and sociodemographic models on the percentages of votes cast for Perot in 1996 (Reform Party), Nader in 2000 (Green Party), and Nader in 2004 (Independent). Analyses of Nader votes in 2004 were based only on the 35 states in which he was on the ballot.

State-level personality model
Analyses of the percentages of third-party votes cast in the three elections revealed that the state-level personality model shared significant proportions of variance with votes cast for Nader in 2000 and 2004 ($R = .604$ and .624, respectively) but not for Perot in 1996 ($R = .325$). As shown in the top portion of Table 13.3, state-level openness was a marginally significant negative predictor of the percentage of votes for Perot, but not for Nader in either 2000 or 2004. Conscientiousness and neuroticism were negative predictors of the percentages of votes cast for Nader in both elections, but they had no effect on support for Perot.

Sociodemographic model
The results displayed in the middle portion of Table 13.3 show that the sociodemographic model shared significant proportions of variance with the percentages of votes cast for Perot in 1996 and Nader in 2000 and 2004 ($R = .751$, .755, and .740, respectively). The partial regression coefficients reveal that the percentage of African Americans was negatively related to the percentage of votes cast for Perot and Nader in 2000 and 2004. In the 2000 and 2004 elections, the percentage of white-collar workers was a significant positive predictor of votes cast for Nader.

GENERAL DISCUSSION
Previous research indicates that differences in historical settlement patterns, cultural diversity, and local economic circumstances contribute to regional voting patterns (Agnew, 1987a, 1987b; Bensel, 1984; Elazer, 1994; Heppen, 2003; Hero, 1998). The present work set out to examine an additional potential influence on voting patterns. Using multiple samples, elections, and sources
of data, our results converged to indicate that statewide differences in basic personality traits account for variation in Presidential election voting patterns.

The results were largely consistent with previous research on the links between personality and political orientation at the individual level (Caprara et al., 1999; Carney et al., 2008; Gosling et al., 2003; Jost et al., 2003a, 2003b; McCrae, 1996; Ozer & Benet-Martinez, 2006) and shed new light on the psychological characteristics of individuals inhabiting different geographical regions and their relations to voting patterns. Consistent with our predictions, state-level openness and conscientiousness scores differentially predicted the percentages of votes cast for Democratic and Republican candidates in the three presidential elections between 1996 and 2004. More specifically, states with higher average levels of openness and lower levels of conscientiousness were more likely to vote for Democratic candidates and less likely to vote for Republican candidates. On the basis of these findings, people living in “blue states” would be characterized as more curious, creative, imaginative, intellectual, and tolerant of differences than people living in “red states.” At the same time, residents of “red states” will tend to be more traditional, reliable, organized, efficient, and self-disciplined than residents of “blue states.”

Although no explicit predictions about the relation between extraversion and political orientation were made, state-level extraversion scores were positively related to preferences for Democratic candidates and negatively related to preferences for Republican candidates. Thus, inhabitants of “blue states” could be characterized as more talkative, enthusiastic, energetic, and sociable and less inhibited, quiet, and reserved than people living in “red states.” Our extraversion findings are inconsistent with those of Caprara and colleagues (1999, 2003), who found that energy was associated with center-right (rather than center-left) political preferences in Italy. Future research is needed to better understand the causes of cross-national differences in psychological predictors of political orientation (see Thorisdottir, Jost, Liviatan, & Shrout, 2007).

With regard to independent and third-party candidates, at least two general patterns seemed plausible. First, the same personality characteristics (e.g., high openness or low agreeableness) could have predicted statewide support for minority party candidates in general, to the extent that all third-party candidates are likely to depart from the political mainstream. Alternatively, the personality characteristics that predicted support for Republican candidates could have also predicted support for relatively conservative third-party candidates (like Perot), and the characteristics that predicted support for Democratic candidates could have predicted support for liberal third-party candidates (like Nader). We found more evidence in support of the latter possibility. Specifically, individuals in states in which Perot received stronger support in 1996 were somewhat lower in openness (like Republican states), whereas individuals in states where Nader received more support were lower in conscientiousness (like Democratic states).

The results from our analyses comparing the relative contributions of personality, sociodemographic, and political variables provide further evidence for the robust effects of state-level personality on political preferences. Out of a total of 15 model comparison analyses, the state-level personality model accounted for significant proportions of unique variance in 13 (87%) of them. These findings strongly suggest that personality traits common in a region affect how individuals in the region vote, independent of the sociodemographic, economic, and political characteristics of the region. Although the other two models accounted for substantially more unique variance, the present findings nevertheless suggest that state-level personality can inform
our understanding of regional voting patterns over and above the information provided by more traditional variables. It is worth emphasizing that the patterns of findings were replicated in two separate personality samples and three presidential elections.

LIMITATIONS OF THE PRESENT RESEARCH

As in most studies that rely on self-report methodologies, it is possible that responses to the BFI were affected by social desirability concerns. That is, participants might have attempted to answer the personality items in such a way as to present themselves in a favorable light (Borkenau & Amelang, 1985; Paulhus, 1991); the problem with this is that the findings could reflect social desirability rather than personality per se. Given that responses were completely anonymous and that participants’ primary incentive for completing the questionnaire was to receive feedback on their personalities, it is unlikely that self-presentational concerns drove their responses. Nonetheless, to rule out this possibility empirically, we adopted the well-known strategy of computing for each participant a social desirability index from the mean of all personality items after recoding the items in a socially desirable direction (Paulhus, 1991). We then recalculated state-level personality estimates after removing the top 20% of scorers on this social desirability index and re-ran the multiple regression analyses to predict voting patterns. The effects were virtually identical to those obtained when all respondents were used, suggesting that socially desirable responding did not drive the effects of state-level personality on voting patterns.

Another potential limitation of the present work is that the samples were gathered using a relatively novel Internet methodology, raising the question of whether our findings would generalize to the population as a whole. The samples were not representative because they were based on self-selected groups of participants who chose to complete the personality measure online. However, recent work comparing self-selected Web-based samples to traditional convenience samples of non–self-selected participants suggests that this problem is not as serious as one might expect. For one thing, the Big Five scale reliabilities in the present work were very similar to those obtained in research using non–self-selected participants (Gosling et al., 2003; John & Srivastava, 1999), suggesting that our participants were not responding less carefully or systematically than participants from other samples. In addition, research demonstrates that self-selected online respondents tend to provide clearer and more complete responses than do respondents who are not similarly self-selected (Gosling et al., 2004; Walsh, Kiesler, Sproull, & Hesse, 1992). Research also shows that participants are less likely to engage in socially desirable responding when completing Web-based surveys than paper-and-pencil questionnaires or telephone interviews (Richman, Kiesler, Weisband, & Drasgow, 1999). Moreover, we found that our samples were more culturally representative of the population than are most convenience samples. At the same time, we recognize that future research on the effects of state-level personality on voting patterns would benefit from work using even more representative sampling methods.

CONCLUSION

The present work demonstrates that personality variables can be used to illuminate regional voting patterns. We found that the psychological characteristics of people inhabiting certain geographical regions independently contribute to their political preferences, even after adjusting
for standard sociodemographic and political indicators. Importantly, the effects of state-level personality on statewide voting patterns generalized across two different personality samples and three presidential elections. Our findings provide empirical support for previous observations that individuals “cluster in places where people share their cultural aesthetic and, as it turns out, political values” (Brooks, 2004, p. A27). That is, “blue states” are disproportionately high in openness, and “red states” are disproportionately high in conscientiousness. By taking into account the aggregate effects of individual-level personality estimates, our work sheds light on the complex interplay between regional and psychological characteristics in shaping electoral outcomes.

From our perspective, the main advantage of research on the effects of state-level personality is that it provides information about the psychological processes underlying regional differences in political preferences. Whereas most macro-level research generally draws inferences about the psychological characteristics of individuals on the basis of aggregate-level data (e.g., Elazer, 1994; Florida, 2002), state-level personality research allows for a direct test of these inferences. For example, Elazer’s description of “traditionalistic” political culture suggests that people living in the agrarian South should be especially concerned with respecting authority and maintaining social order and tend to vote for conservative rather than liberal candidates. This description is supported by our empirical findings, which show that residents of “red states” are relatively conventional, concerned with order, and less tolerant of new and diverse ideas.

Among the many variables that distinguish regions from one another is the availability of certain forms of human capital and economic growth. Whereas metropolitan regions generally have strong economies with large proportions of creative human capital (i.e., individuals who encourage and support innovation), rural regions tend to have comparatively less economic growth and higher rates of social capital in terms of family-, community-, and civic-oriented participation (Florida, 2002; Putnam, 2000). Both of these forms of capital can be linked to political orientation and voting behavior. For example, regions that are high in creative capital (e.g., California, Massachusetts) are generally more likely to support liberal policies and candidates than are regions high in social capital (e.g., North Dakota, South Dakota). To the extent that differences in the types and amounts of human capital are related to personality traits, studies of regional and psychological characteristics have the potential to identify mechanisms that link specific cultural, economic, and technological factors to voting behavior and other political outcomes. Research programs that fuse insights and methods from different disciplines, including psychology and political science, will help broaden our understanding of the dynamics underlying voting behavior and regional differences in political ideology.

Authors’ Note
Portions of this research were presented at the 2005 International Society of Political Psychology (ISPP) conference in Toronto, Ontario, and the 2006 Society for Personality and Social Psychology (SPSP) conference in Palm Springs, CA. We are grateful to Stanley Feldman, Lew Goldberg, Mark Lewis, Matthias Mehl, Leonard Newman, James Pennebaker, Bill Swann, Simine Vazire, and Wendy Wood for their thoughtful comments on this research.

Bibliography references:


Hofstede, G., & McCrae, R. R. (2004). Personality and culture revisited: Linking traits and...


Notes:

(1) The political variable chosen to represent the impact of state-wide political behavior was a measure of change in voting patterns, or the difference in the percentages of votes from the two previous elections. This variable sheds light on whether change in state-wide Democratic votes between 1988 and 1992, for example, influenced votes for the Democratic candidate in 1996. A political variable like this is more illuminating than the percentage of votes in the previous election because (a) state-wide presidential voting patterns are very highly correlated across elections, and (b) a political change variable measures variations in the political behaviors of state residents. Thus, if changes in previous voting patterns predict the percentage of state-wide votes, this would suggest that there is a shift in the overall political orientation of state residents.

(2) Votes for Democratic candidates are strongly negatively related to votes for Republican candidates. Therefore, we also analyzed the data using two bipolar political-preference variables as the criteria: a Democrat versus Republican variable (excluding the percent of votes cast for third-party candidates) and a third-party versus major parties variable. The results from these analyses were virtually identical in every respect to the results reported here, in which the raw percent of votes cast was used as the primary criteria. We used the raw percentage of votes cast for each candidate as the criteria, instead of the bipolar political preference variables because these analyses are more straightforward to interpret.

(3) Although $r^2$ is commonly thought to reflect the percent of shared variance between measured variables, this interpretation is correct only in certain circumstances. Jensen (1980) provided clarification for the difference between $r^2$ and $r$ by pointing out that $r^2$ reflects the percent of variance in one variable that can be predicted by another variable, whereas $r$ reflects the percent of variance common in two variables. Ozer (1985) extended this work by describing two analytic models, the variance decomposition and variance composition models, to delineate the appropriate conditions for using $r$ and $r^2$ as effect size estimates. The variance decomposition model assumes that the predictor variable is contained within the criterion variable, and requires that the predictor variable is corrected for attenuation (which is seldom the case). In this model, $r^2$ represents the amount of variance in the criterion variable that is accounted for by the predictor variable, and should therefore be used as the effect size estimate. In contrast, the variance composition model assumes that a latent variable is responsible for the covariance between measured variables. In this model, $r$ is the appropriate effect size estimate because it represents the covariance of measured variables by a latent variable (or the percent of variance common in the variables measured). For detailed discussions of the uses and misuses of $r$ and $r^2$, see D’Andrade and Dart (1990), Jensen (1971, 1980), and Ozer (1985).

<table>
<thead>
<tr>
<th>Democratic Candidate</th>
<th>1996&lt;sup&gt;2&lt;/sup&gt; CLINTON</th>
<th>2000&lt;sup&gt;2&lt;/sup&gt; GORE</th>
<th>2004&lt;sup&gt;2&lt;/sup&gt; KERRY</th>
<th>MEAN</th>
</tr>
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<td><strong>State-level personality:</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>-.244E-14</td>
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<td>-1.87E-14</td>
</tr>
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<td>.686***</td>
<td>.706***</td>
<td>.665</td>
</tr>
<tr>
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<td>-.435**</td>
<td>-.521**</td>
<td>-.446</td>
</tr>
<tr>
<td>Extraversion</td>
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<td>.316*</td>
<td>.381**</td>
<td>.331</td>
</tr>
<tr>
<td>Agreeableness</td>
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<td>.146</td>
<td>.231</td>
<td>.153</td>
</tr>
<tr>
<td>Neuroticism</td>
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<td>.122</td>
<td>.260*</td>
<td>.186</td>
</tr>
<tr>
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<td>.682***</td>
<td>.716***</td>
<td>.678</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
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<td>.244+</td>
<td>.570***</td>
<td>.371</td>
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Note. Cell entries are nonstandardized partial regression coefficients (and their standard errors). State-level personality estimates for 1996 and 2000 were derived from Sample 1; state-level personality estimates for 2004 were derived from Sample 2.

(a) Sample 1,

(b) Sample 2:
Table 13.2. Multiple regression analyses of the state-level personality, sociodemographic, and political models for the Republican Presidential candidates in the 1996, 2000, and 2004 elections.

<table>
<thead>
<tr>
<th>Republican Candidate</th>
<th>1996&lt;sup&gt;a&lt;/sup&gt; DOLE</th>
<th>2000&lt;sup&gt;b&lt;/sup&gt; BUSH</th>
<th>2004&lt;sup&gt;c&lt;/sup&gt; BUSH</th>
<th>MEAN</th>
</tr>
</thead>
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<td>(.101)</td>
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Note. Cell entries are nonstandardized partial regression coefficients (and their standard errors). State-level personality estimates for 1996 and 2000 were derived from Sample 1; state-level personality estimates for 2004 were derived from Sample 2.

(a) Sample 1,

(b) Sample 2;
Table 13.3. Multiple regression analyses of the state-level personality, sociodemographic, and political models for the third-party Presidential candidates in the 1996, 2000, and 2004 elections.

<table>
<thead>
<tr>
<th>Third-Party Candidate</th>
<th>1996(^a) PEROT</th>
<th>2000(^a) NADER</th>
<th>2004(^b) NADER(5)</th>
<th>MEAN</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State-level personality:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>3.54E−15</td>
<td>2.30E−14</td>
<td>−5.08E−15</td>
<td>7.15E−15</td>
</tr>
<tr>
<td>(140)</td>
<td>(118)</td>
<td>(143)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness</td>
<td>−.203+</td>
<td>.212</td>
<td>−.044</td>
<td>−.045</td>
</tr>
<tr>
<td>(164)</td>
<td>(138)</td>
<td>(179)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>−.290</td>
<td>−.567**</td>
<td>−.454*</td>
<td>−.370</td>
</tr>
<tr>
<td>(200)</td>
<td>(169)</td>
<td>(223)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extroversion</td>
<td>−.016</td>
<td>−.054</td>
<td>.145</td>
<td>.021</td>
</tr>
<tr>
<td>(179)</td>
<td>(151)</td>
<td>(191)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.064</td>
<td>.041</td>
<td>−.262</td>
<td>−.052</td>
</tr>
<tr>
<td>(180)</td>
<td>(151)</td>
<td>(255)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>−.030</td>
<td>−.513***</td>
<td>−.291+</td>
<td>−.278</td>
</tr>
<tr>
<td>(157)</td>
<td>(133)</td>
<td>(153)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>.325</td>
<td>.604***</td>
<td>.624**</td>
<td>.518</td>
</tr>
<tr>
<td><strong>Sociodemographic:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>7.01E−16</td>
<td>2.54E−17</td>
<td>−5.90E−16</td>
<td>4.55E−17</td>
</tr>
<tr>
<td>(100)</td>
<td>(106)</td>
<td>(125)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median family income</td>
<td>.148</td>
<td>.148</td>
<td>−.019</td>
<td>.092</td>
</tr>
<tr>
<td>(159)</td>
<td>(158)</td>
<td>(210)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College degree</td>
<td>−.208</td>
<td>.146</td>
<td>.031</td>
<td>−.010</td>
</tr>
<tr>
<td>(192)</td>
<td>(190)</td>
<td>(253)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White collar</td>
<td>.016</td>
<td>.065**</td>
<td>.776**</td>
<td>.420</td>
</tr>
<tr>
<td>(171)</td>
<td>(169)</td>
<td>(228)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue collar</td>
<td>.065</td>
<td>−.065</td>
<td>.298</td>
<td>.099</td>
</tr>
<tr>
<td>(190)</td>
<td>(188)</td>
<td>(255)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>−.672***</td>
<td>−.511***</td>
<td>−.668***</td>
<td>−.517</td>
</tr>
<tr>
<td>(118)</td>
<td>(117)</td>
<td>(160)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>−.127</td>
<td>−.034</td>
<td>.245</td>
<td>.028</td>
</tr>
<tr>
<td>(121)</td>
<td>(120)</td>
<td>(161)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>.751***</td>
<td>.755***</td>
<td>.740***</td>
<td>.749</td>
</tr>
</tbody>
</table>

*Note.* Cell entries are nonstandardized partial regression coefficients (and their standard errors). State-level personality estimates for 1996 and 2000 were derived from Sample 1; state-level personality estimates for 2004 were derived from Sample 2.

(a) Sample 1,
(b) Sample 2;
Patience as a Political Virtue: Delayed Gratification and Turnout

James H. Fowler · Cindy D. Kam

Abstract A number of scholars have demonstrated that voter turnout is influenced by the costs of processing information and going to the polls, and the policy benefits associated with the outcome of the election. However, no one has yet noted that the costs of voting are paid on or before Election Day, while policy benefits may not materialize until several days, months, or even years later. Since the costs of voting must be borne before the benefits are realized, people who are more patient should be more willing to vote. We use a “choice game” from experimental economics to estimate individual discount factors which are used to measure patience. We then show that patience significantly increases voter turnout.

Keywords Voter turnout · Discount factor · Patience · Delayed gratification

Patience as a Political Virtue: Delayed Gratification and Turnout

Does the aphorism, “Patience is a virtue” apply to political life? Is patience a political virtue? We argue that it is, and we show that patient citizens are more likely to participate in political life. Our account of patience as a political virtue contributes to the abundant literature that has sought to explain why citizens turn out to vote and participate in other activities (Campbell, Converse, Miller, & Stokes, 1960; Rosenstone & Hansen, 1993; Verba, Schlozman, & Brady, 1995; Wolfinger & Rosenstone, 1980). Several empirical studies suggest that voter turnout is influenced by the costs of processing information and going to the polls, and the policy benefits associated with the outcome of the election (Franklin & Grier, 1997; Hansen, Palfrey, & Rosenthal, 1987; Highton, 1997; Jackson, 2000; Kaempfer & Lowenberg, 1993; Knack 1997, 2001; Nagler, 1991). However, none of these studies considers the fact that the costs and benefits of turning out to vote are borne at different times. The costs of voting are paid on or before Election Day, while policy...
benefits may not materialize until several days, months, or even years after Election Day. If an individual must bear the costs of participation long before the benefits are received, then an individual’s level of patience should also affect the decision to turn out. Patient individuals—that is, those who place greater value on the future benefits of participation—should be more likely to vote, while impatient individuals, who place greater value on the immediate costs of participation, should be less likely to vote.

This article provides an initial examination of the relationship between patience and turnout. To do so, we incorporate a technique from experimental economics, where subjects play a “choice game” (Coller & Williams, 1999; Harrison, Lau, & Williams, 2002; Harrison, Lau, Rustrom, & Sullivan, 2004) in which they are asked to make a series of choices between a prize that will be awarded in 30 days and a larger prize that will be awarded in 60 days. The choices made reveal the degree to which subjects are willing to wait for future benefits and can be used to estimate how much they discount future payoffs. In other words, this procedure yields an innovative measure of the patience of each individual that does not require introspection or self-report.

We begin with a brief overview of our conceptualization of patience and why we think it should propel citizens to turn out to vote. We then review the meaning and measurement of patience in the literatures in psychology and economics, with special attention to laboratory-based research methodology. We conduct two analyses: first, we uncover the structural correlates of patience, as we have measured it. Second, we identify the relationship between patience and turnout. We find, indeed, that patience predicts turnout. We conclude with a discussion of the generalizability of our approach and its potential applications to other aspects of political life.

Patience and Political Life

Is patience a virtue that is relevant to political life? Normative theory suggests it may indeed be. In his discussion of liberal virtues, Galston (1988) characterizes patience as a virtue required by modern markets. Modern market economies require several virtues, among them “the achievement of a mean between ascetic self-denial and untrammeled self-indulgence—call it a capacity for moderate delay of gratification; for while market economies rely on the liberation and multiplication of consumer desires, they cannot prosper in the long run without a certain level of saving, which rests on the ability to subordinate immediate gratification to longer-run self-interest” (p. 1283). Additionally, liberal polities also require long-term time horizons: “The greatest vices of popular governments are the propensity to gratify short-term desires at the expense of long-term interests” (Galston, 1988, p. 1283).

What is the empirical link between patience and political life? Here, we pose the question of whether patience predicts a willingness to engage in political action, specifically, to turn out to vote. A wide range of empirical studies of voting has shown that turnout is influenced by the costs associated with making a decision and going to the polls and the benefits associated with the outcome of the election (Aldrich, 1993). For example, Verba, Schlozman, & Brady (1995) argue that socioeconomic status measures like education affect turnout because they influence the cost of obtaining and processing political information. Restrictive registration laws increase the cost of voting and thereby discourage turnout (Franklin & Grier, 1997; Highton, 1997; Knack, 1997, 2001; Nagler, 1991), while liberal absentee ballot laws and all-mail elections encourage it (Karp & Banducci, 2000; Oliver, 1996; Southwell & Burchett, 2000). Even rainfall on Election Day
has been shown to depress turnout among some voters (Knack, 1994). Although less well
documented, benefits related to the election outcome also have an effect on turnout. For
example, people are more likely to vote in “high stakes” elections that have larger policy
effects (Hansen et al., 1987; Jackson, 2000; Wolfinger & Rosenstone, 1980) and when they
think there is a larger difference in the policies offered by the competing parties (Kaempfer
& Lowenberg, 1993).

An important oversight in this literature is that there is a time dimension to the costs and
benefits of voting. While the costs of voting are paid on or before Election Day, any
benefits related to the policy outcome are not obtained until after Election Day. In fact, it
may take several years for an election result to yield the policy outcomes that motivated
citizens to go to the polls. Given that present costs are being compared to future benefits,
subjective time preferences may influence the decision to vote. Citizens who are patient
might be willing to bear the immediate costs of voting because they place a high value on
future policy benefits. In contrast, citizens who are impatient might place more weight on
the costs of voting, which are felt immediately, and be less likely to gain utility from future
policy benefits. Thus variation in patience may be an important factor in explaining
individual turnout decisions.

The expressive benefits of voting and benefits related to fulfilling a social obligation
may also invite patience to play a role in the turnout decision. If respondents experienced
only immediate costs from the act of voting and immediate gains from the act of voting
(for example, immediate social affirmation from wearing the “I voted” sticker), then
patience would be irrelevant, since all voters could receive immediate benefits. However,
the act of voting arguably taps both immediate and future-oriented expressive benefits.
These future benefits might be understood, according to Riker and Ordeshook (1968), as
supporting, in the long-term, the democratic form of governance. Patient citizens might
therefore have a greater stake in using the vote as a means of affirming system support for
the future stability of the regime. As Downs (1957) notes, a citizen might even throw his
support behind a “hopeless” party “in the belief that his support will enable it to grow and
someday become a likely winner—thus giving him a wider range of selection in the future” (p. 49). Patient citizens would be more likely to use the vote as a means of
affirming allegiance to a party, again for the future benefit of the party. For these various
reasons, we expect to see a relationship emerge between turnout and patience: for patience
to be a political virtue that propels citizens to turn out.

We have found little in the political science literature to guide our conceptual under-
standing of patience, and no studies empirically test for a relationship between patience
and political participation. As a result, we have grounded our conceptualization and
empirical approach in the existing literature on delayed gratifications, time orientations,
and future time horizons from psychology and economics.

Following the existing approach in psychology and economics, we conceptualize pa-
tience as an individual-level disposition. Patience is a more or less stable propensity to react
to situational demands with a willingness to defer immediate (or short-term) gratification for
future rewards. Some individuals are more patient than others, and these individuals would
be more likely to exhibit delayed gratification behaviors. Contextual conditions can also set

1 Renshon’s (1977) piece deals explicitly with the concept of time horizons and political behavior, but the
concept Renshon develops is very different from ours. Renshon analyzes individual’s views about “the
propensity to expect or desire immediate rather than long-term rewards from the political system” (p. 263).
Instead of identifying an individual’s generalized time horizon in willingness to wait for returns, Renshon
focuses on an individual’s beliefs about how quickly (or slowly) the political system should operate.
up incentives for individuals, even those who are not predisposed to delay gratification, to exhibit delayed gratification behaviors. Thus, delayed gratification behavior is determined by both individual-level dispositions (e.g., patience) and contextual inducements. For our purposes, we are interested in the individual-level disposition, patience.

In the psychological literature, patience, delay behavior, and more generally, time preference, have been conceptualized as a psychological disposition—a more or less stable individual difference that influences how a person responds to situations that arise. The willingness to delay gratification has been “an enduring focus” of study within the field of personality psychology (Funder & Block, 1989, p. 1041). Variation in willingness to delay immediate gratification for the promise of future rewards appears among children as young as four years old and correlates with dispositions measured later in life (Funder, Block, & Block, 1983). A willingness to delay gratification has relevance for a wide range of behaviors, including drug addiction, educational attainment, savings and investment, and gambling (Funder et al., 1983; see Mischel, 1974 for a review).

Patience also plays a prominent role in the economics literature. As Becker and Mulligan (1997) note, “Time preference plays a fundamental role in theories of savings and investment, economic growth, interest rate determination and asset pricing, addiction, and many other issues that are getting increasing attention from economists” (p. 729). The economics literature, according to Becker and Mulligan, equates “‘time preference’ with the marginal rate of substitution between current and future consumption” (p. 731).

Researchers have measured patience with both self-reports and with choice behaviors. Self-report scales require subjects to rate their own characteristics. Ray and Najman (1986) have compiled a 12-item self-report scale that has been used in studies of pathological gambling (Parke, Griffiths, & Irwing, 2004) and educational achievement (Bembenutty & Karebenick, 2004). Strathman, Gleicher, Boninger, and Edwards (1994) develop a Consideration of Future Consequences scale to measure the willingness to sacrifice immediate benefits (and absorb immediate costs) for future benefits. They argue that “‘there are clear and reliable individual differences in the extent to which individuals are likely to consider distant outcomes in choosing their present behavior’” (p. 724). Strathman et al. (1994) further note that patience can be viewed as a continuum, anchored at one end by “‘those individuals who consider future outcomes as a matter of course...They are willing to sacrifice immediate benefits like pleasure or convenience to achieve more desirable future states’” (p. 724) and anchored at the other by “‘individuals who are not interested in considering possible future consequences. These individuals are more concerned with maximizing immediate benefits at the expense of costs or benefits that will not occur for some time, and they place a high priority on such immediate benefits’” (p. 724).

Self-reports, especially for questions that trigger social desirability concerns or that require individuals to introspect, may be less reliable and less valid indicators than other measures, such as those derived from behavioral observation (Berinsky, 2004; Kagan, 1988; Mischel, 1974; Schwarz, 1999; Webb, Campbell, Schwartz, & Sechrest, 2000). As an example of the latter approach, Dubin and Kalsow (1996), discuss “patience” in the context of whether individuals will vote on ballot propositions. In their analysis, the length of the ballot propositions tries an individual’s patience; “‘the longer the description of the proposition, the more impatient the voter becomes, and the less support the proposition receives’” (p. 407). We conceptualize patience as an individual-level disposition, whereas Dubin and Kalsow (1996) view (im-) patience as induced by the political environment, the length of ballot propositions.

“A serious limitation of self-report information is that each person has only a limited awareness of his or her moods, motives, and bases for behavior, and it is not obvious that only conscious intentions and moods make up the main basis for variation (Wilson, Hull, & John 1981)”, cited in Kagan (1988, p. 617).
such, patience, or willingness to delay gratification, has also been measured with observation of behavioral choices. In psychological studies of children, for example, researchers have examined the extent to which subjects forego some prize that is immediately available in order to obtain a more desirable prize in the future (Mischel, 1974).

Economists have also used a similar choice-based approach to measure willingness to delay gratification. In these studies, subjects are presented with a series of choices between two payoffs, a smaller amount paid now and a larger amount paid later. Each choice yields information about how much a subject discounts future payoffs, which allows us to estimate the subject’s discount factor ($\delta$). For example, if a subject chooses $90 now instead of $100 later, we know that she values the earlier payment more than the later payment. This implies a subjective inequality for her discount factor: $90 > \delta 100$ or $\delta < 0.9$ for the period between the present and future payoff. If the same subject also chooses $100 later instead of $80 now for the same time period, then we know that $80 < \delta 100$ and the discount factor must lie in the interval $0.8 < \delta < 0.9$. A series of choices with different values for the same time period allows us to identify the interval in which the discount factor falls for each subject. Those who more frequently choose the future payoff will have higher discount factors. Thus, there should be a positive relationship between the discount factor and patience (for a discussion, see Becker & Mulligan, 1997).

One potential wrinkle in the procedure for measuring patience is that discount factors may be hyperbolic, meaning that people tend to value the present much more strongly than other periods (Laibson, 1997). As a result, recent efforts by economists to elicit discount factors usually avoid choices with immediate payments and instead give subjects two future choices (Coller & Williams, 1999; Harrison et al., 2002). This work suggests that beyond the immediate present the discount factor is approximately constant—people make consistent choices when they are faced with similar future time intervals. For example, subjects make the same choices between a smaller payment in 30 days and a larger payment in 60 days as they do when they must choose between a smaller payment in 90 days and a larger payment in 120 days.

Research Design and Subject Profile

We took advantage of a laboratory setting to examine the relationship between patience and turnout. The laboratory setting enables us to implement a choice-based measure of patience, as yet unseen in political science, and it enables us to do so in an environment that allows for a high degree of anonymity. In May 2004, about 350 subjects were recruited from two introductory undergraduate political science courses to participate in a computer-based survey. Subjects were offered credit towards their course grade for their participation in the study, and 249 (about 70%) of them chose to participate. Of these, 235 were eligible to vote in the March 2004 California primary election. Each subject answered several standard socioeconomic and political attitude questions (exact question wording can be found in the appendix).4

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4 Subjects ranged in age from 18 to 27 years, were evenly divided between women and men, and about 53% were minorities. This convenience sample is similar to the undergraduate body from which it is drawn (the undergraduate body is 56% female and 51% minority). The average subject leaned left and Democratic, placing herself at 3.57 on the seven-point liberal conservative scale and 3.27 on the seven-point party identification scale. Admittedly, we rely on a convenience sample of undergraduates for our study. We discuss the advantages and disadvantages of this sample in the conclusion.
Subjects were asked whether or not they voted in the March 2004 California primary, which included nominations for national and local offices and four widely publicized ballot measures related to the California budget crisis. Typical for a younger population, about 21% of those eligible say they voted, compared to 31% in the population as a whole. About 39% said they were very interested in the election campaign, but only 34% agreed that voting in elections is a duty.

At the end of the survey, each subject was informed that he or she was eligible to win a prize and then asked to make a series of choices between a $100 prize in 30 days or a larger prize in 60 days (see the appendix for a full description). Following Harrison et al. (2002) both a dollar amount and an effective annual interest rate were displayed in order to help subjects think about their choices. At the conclusion of the survey a lottery was used to choose a single prize winner and another lottery to decide which set of alternatives determined the payoff. It should be noted that just like previous experiments using this method (Coller & Williams, 1999; Harrison et al., 2002), the expected value of the prize to each subject in this experiment is quite low (approximately $100/N ≈ $0.40 to each subject). However, Camerer and Hogarth (1999) show that stake size has only a small effect on average behavior in experiments like these and the biggest effect of stakes on behavior is changing from zero to positive stakes. Coller and Williams (1999) specifically show that discount factors elicited with a single prize are significantly different from discount factors implied by hypothetical choices, suggesting that even a small prize incentive causes subjects to take their decisions seriously.

If subjects are consistent and make no mistakes, they should always choose the earlier payoff, always choose the later payoff, or switch from the earlier payoff to the later payoff at exactly one point during their series of choices. The point at which they switch indicates the interval of the implied discount factor. For example, a subject may choose the earlier $100 prize when the later prize is less than or equal to $104.25 and then switch to the later prize for all values greater than or equal to $106.44. If so, then the implied discount factor is estimated to fall somewhere between $100/$106.44 ≈ 0.94 and $100/$104.25 ≈ 0.96. About 82% of the subjects in the experiment made consistent decisions across all 20 choices, while 15% made only one ‘mistake’. Inconsistent choices are dropped from the data as in Harrison et al. (2002) and Coller and Williams (1999), but none of the analysis changes significantly when the first observed choice of the larger prize, the last observed choice of the smaller prize, or multiple imputation is used to estimate the remaining discount factors.

Figure 1 shows the distribution of monthly discount factors implied by subjects’ responses in this choice game. For subjects who always choose the earlier or later prize, discount factors are set to the value implied by maximum and minimum values, respectively. All other values are set to the midpoints of the estimated intervals. Notice that there are modes at the endpoints, suggesting that several subjects were either willing to wait for all future prizes (the patient), or not willing to wait for any of them (the impatient). There

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5 To be sure all students would be present at the time of the future awards, the survey was administered more than 60 days prior to the end of the quarter. Specific discount factors and the dollar amounts they imply for the future prize are taken directly from Harrison et al. (2002). This and other discount factor studies suggest that results are robust to different gradations of choices.

6 Although these experimental discount factors may be high relative to those implied by annual market rates of interest, they fall within the wide range of discount factors estimated by other scholars in the literature (see Frederick, Loewenstein, & O’Donoghue, 2002 for a comprehensive review) and should still be useful for resolving whether or not people who prefer the earlier prize behave differently from people who prefer the later prize.
is another mode in the center where subjects chose the future prize once its value rose above $110. This is consistent with evidence from Harrison et al. (2004) showing that subjects sometimes focus on dollar values instead of rates of return and thus may be influenced by “focal points” in the dollar amount. The rest of the discount factor estimates span the distribution, ensuring a wide range of variation for evaluating the influence of patience on turnout.

Who Is Patient?

Before we test the hypothesis that patient individuals are more likely to vote, we analyze the structural correlates of patience, as we have measured it. Table 1 displays the pairwise correlations between patience and a number of factors that are widely thought to affect turnout, including socioeconomic status, political engagement, political efficacy, civic duty, and church attendance.

Consistent with earlier findings by Harrison et al. (2002) and Coller and Williams (1999), patience does not correlate significantly with any of our demographic or socioeconomic status variables. However, we do observe two intriguing relationships. First, patience correlates positively with political interest, suggesting that individuals who are more oriented towards future rewards are more likely to pay attention to politics. Most campaign issues revolve around policies and political outcomes that will not have an immediate effect—it usually takes months to legislate such changes, years to implement them, and it may be even longer before typical voters notice a change in their own lives. Individuals who only care about the present thus may not pay attention to political campaigns because they prefer to pay attention to other events that are more likely to affect them immediately. Second, patience correlates positively with church attendance, consistent with other studies that indicate a link between patience and church attendance. For example, Iannaccone (1998) shows that those who believe in an afterlife are more likely to attend church, and Becker and Mulligan (1997, p. 741) argue that religious people have higher discount factors because they believe in an afterlife and thus have longer time horizons. Given that patience correlates with both political interest and church attendance, it will be important to include these variables as controls in our models of turnout to be sure that the relationship between patience and the decision to vote is not epiphenomenal.

![Distribution of patience in the discount factor choice game](image_url)

**Fig. 1** Distribution of patience in the discount factor choice game
Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Correlation with patience</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnout</td>
<td>0.15</td>
<td>0.04</td>
</tr>
<tr>
<td>Age</td>
<td>-0.01</td>
<td>0.88</td>
</tr>
<tr>
<td>Female</td>
<td>0.08</td>
<td>0.25</td>
</tr>
<tr>
<td>Nonwhite</td>
<td>-0.06</td>
<td>0.37</td>
</tr>
<tr>
<td>Parents’ income</td>
<td>-0.01</td>
<td>0.86</td>
</tr>
<tr>
<td>Parents’ education</td>
<td>-0.06</td>
<td>0.37</td>
</tr>
<tr>
<td>Strength of party ID</td>
<td>0.08</td>
<td>0.25</td>
</tr>
<tr>
<td>Political interest</td>
<td>0.20</td>
<td>0.00</td>
</tr>
<tr>
<td>Reads news</td>
<td>0.02</td>
<td>0.73</td>
</tr>
<tr>
<td>Watches news</td>
<td>0.00</td>
<td>0.99</td>
</tr>
<tr>
<td>Political information</td>
<td>0.03</td>
<td>0.71</td>
</tr>
<tr>
<td>External efficacy</td>
<td>-0.01</td>
<td>0.93</td>
</tr>
<tr>
<td>Internal efficacy</td>
<td>0.07</td>
<td>0.32</td>
</tr>
<tr>
<td>Civic duty</td>
<td>-0.12</td>
<td>0.08</td>
</tr>
<tr>
<td>Church attendance</td>
<td>0.20</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Patience and Turnout

In Table 1, we see that there is a significant bivariate correlation between patience and turnout (0.15, p = 0.04). Examination of the raw data makes this relationship more concrete. Subjects who had higher than average discount factors (δ > 0.91) turned out at a rate of 26% compared to 16% turnout for those with lower than average discount factors. Among subjects who always chose the earlier prize (the least patient), only 13% voted. Among subjects who always chose the later prize (the most patient), 20% voted. Voters also tended to be more patient, with significantly higher discount factors than nonvoters (two-sided t-test, p = 0.02). People who are more willing to wait for a larger prize in the choice game are more likely to vote, supporting the connection between patience and turnout.

To be sure this correlation is not the result of other confounding relationships, we present results from three logit models of turnout in Table 2. Model 1 is a simple bivariate regression of individual turnout on the discount factor measured in the study. The results confirm that the relationship between patience and turnout is positive and significant. In Models 2 and 3, we include a number of factors that are widely thought to affect turnout. In Model 2, we run the ‘‘standard’’ model of turnout, excluding patience, in order to provide a baseline for comparison between a standard model of turnout and one that includes these standard predictors along with patience. These standard predictors include socioeconomic status (SES), political engagement, political efficacy, civic duty, and church attendance. SES is included on the idea that individuals with higher SES are more likely to vote because their costs are lower (Verba et al., 1995; Wolfinger & Rosenstone, 1980). To capture SES, we include variables such as age, gender, and race, as well as subjects’ reports of parental income and education, since parental characteristics are influential in the development of turnout behavior among young people (Plutzer, 2002). Interest in politics, the frequency of news reading or viewing, and the ability to answer basic questions about government indicate political engagement, which tends to correlate with turnout. Moreover, if individuals feel that they can understand political issues (internal efficacy) and their government responds to them (external efficacy), then they are more likely to go to the polls. Church attendance has also been found to be significantly related to turnout (e.g. Timpone, 1998). In particular, Verba et al. (1995) argue that church attendance is important because people acquire civic skills in religious organizations...
(writing letters, public speaking, and so on) that may make it easier for them to participate in politics. Finally, we include a variable for civic duty (Riker & Ordeshook, 1968) to control for the possibility that the feeling that voting is an obligation induces turnout. Details on coding, question wording, and sufficient statistics for all these controls can be found in the Appendix.

In Model 2, we see that turnout is positively influenced by age, parents’ income, strength of party identification, political interest, media exposure, political information, external efficacy, civic duty, and church attendance. It is also related to race and gender, with males and whites being more likely to vote. While most of these results are only weakly significant, they are consistent with past studies that utilize much larger sample sizes to show small but significant relationships between these variables and turnout (Verba et al., 1995; Wolfinger & Rosenstone, 1980). We also note that many of these relationships are significant in simple bivariate correlations (see the appendix).

Since our goal is a strong test of the hypothesis that patience influences turnout, we retain all of these variables—including those that are not significant—in Model 3. Note that in spite of the small sample size and even with the addition of numerous controls, the coefficient on patience continues to be strong and significant. A $\chi^2$ test confirms that adding patience to the model significantly improves model fit (deviance reduction of 5.6, $df = 1$, $p = 0.02$) and suggests that we should reject Model 2 in favor of Model 3. To make these results more concrete, Fig. 2 shows the predicted effect of patience on the probability of voting while holding race at nonwhite, gender at male, and all other values at their means. The least patient subjects vote at a rate of about 9% compared to 32% for the most patient subjects. These results suggest that subjective time preferences have an important effect on the decision to vote.

### Table 2 Effect of patience and other variables on voter turnout

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
<th>Model 3</th>
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<td>Coef.</td>
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<td>p-value</td>
<td>Coef.</td>
<td>S.E.</td>
<td>p-value</td>
<td>Coef.</td>
<td>S.E.</td>
<td>p-value</td>
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<td>0.05</td>
<td>7.98</td>
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<td>0.02</td>
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<td>0.16</td>
<td>0.21</td>
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<tr>
<td>Parents’ education</td>
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<td>Strength of party ID</td>
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<td>Political interest</td>
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<tr>
<td>Reads the news</td>
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<td>0.11</td>
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<td>Watches the news</td>
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<td>Church attendance</td>
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<td>Constant</td>
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<td>−18.50</td>
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<tr>
<td>N</td>
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<td></td>
<td>170</td>
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</table>

**Note**: Model estimated using GLM with logit link function
Conclusions

A number of scholars have demonstrated that individual decisions to vote depend on the costs of processing information and going to the polls, and the benefits associated with the outcome of the election. This article draws attention to the fact that the costs of turnout are borne on or before Election Day, while benefits related to the outcome of the election are not reaped until much later. As a consequence, patience should play an important role in the turnout decision. Patient citizens who are willing to wait for future benefits should be more likely to vote because they place a greater value on the impact of the election on future policy changes. Impatient citizens should be less likely to vote because they are more influenced by the immediate burdens of decision-making and physical participation.

Evidence from the laboratory supports this hypothesis. Subjects were given a series of choices between an earlier, smaller prize and a later, larger prize. Those who consistently chose the later prize were significantly more likely to vote than those who consistently chose the earlier prize. The statistical relationship between patience and turnout remains even when we control for numerous other factors thought to affect the decision to vote.

We argue that behavior in the choice game represents patience: the willingness to defer short-term gains in order to obtain larger long-term gains. However, we concede that it is entirely possible that alternative mechanisms could explain the empirical relationship between an individual’s discount factor and an individual’s likelihood of turning out to vote. Perhaps a third individual-level factor structures both choice behavior and turnout; possibilities include SES or intelligence. With our data we can be confident that SES is probably not the confounding variable, since we control for it in our analysis. We do not, however, have a measure of intelligence, so we cannot dispute this as an alternative explanation.

One might worry that these results are of limited value because they are based on the behavior of a group of college students who are neither representative of the population as a whole, nor representative of college students as a whole. College students, admittedly, represent a group of individuals who by virtue of matriculating into higher education have already engaged in “one form of investment in future-oriented capital” (Becker & Mullanig, 1997, p. 751). These individuals already possess some disposition for delayed gratification—a baseline level of patience, one might argue. As a consequence, variation in the underlying level of patience is likely to be smaller within our convenience sample, compared with what we might see using a more representative sample. This limited

![Fig. 2 Effect of patience on turnout](image-url)

*Note: Predicted turnout probabilities and 95% confidence intervals calculated from Model 3 in Table 2 by varying patience and holding race at nonwhite, gender at male, and all other values at their means.*
variation makes for a more, not less, difficult test of our proposition. In fact, we do see
effects attributable to our measure of patience, despite the likely truncation in the
underlying construct. We might expect to see even larger effects manifested in a more
representative sample, where we would capture wider variation in level of patience. We
believe our results would still hold, and might be strengthened, if the study were replicated
with a more representative sample.

We also note that the setting of our study is unique: it was a low salience, primary
election. Conceptually, we believe that patience should predict electoral behavior across
elections—be they national, subnational, general, or primary. However, the magnitude of
the relationship between patience and turnout could vary with the salience of the election.
One might imagine that highly publicized elections provide adequate gratification in the
short-term for individuals such that the effect of patience could be crowded out in these
elections. As a consequence, patience might be more likely to propel individuals into
political action when more immediate costs and benefits recede into the background. That
is, patience might be more consequential in propelling individuals to the voting booths in
lower salience elections compared with higher salience elections. To the extent that patience
is systematically correlated with other demographics and dispositions of interest (e.g.,
education), it would in these circumstances accentuate systematic inequalities in who votes.

In this initial examination of patience as a political virtue, we have focused exclusively
on the relationship between patience and turnout, and our evidence suggests the relationship
is strong and substantial. Extensions to this research trajectory come readily to mind—
patience might be linked with other acts of political participation, or the relationship be-
tween patience and political participation might be contingent upon the type of act; e.g.,
patient individuals might be more likely to engage in letter-writing than to join demon-
strations. The concept of patience might also be relevant in considering citizens’ views
towards policy issues. To what extent are citizens willing to make sacrifices in the present-
day in order to enact policies with long-run benefits? Variation in patience might be linked
with policy priorities and the direction of policy preference. This possibility is directly
relevant to contemporary issues, from the more mundane discussions about whether and to
what extent citizens are willing to tolerate delays in airport security lines; to larger issues
about Social Security and its long-run solvency; to discussions about the federal budget
deficit; to tradeoffs that must be made between policies designed to provide employment
opportunities in the short-run that might pose environmental consequences in the long-run.
Our evidence so far suggests that patient citizens are more likely to turn out to vote, and it is
easy to imagine that patience could pose even broader political consequences.

Acknowledgments We would like to thank Robert Huckfeldt, Brian Sala, Liz Zechmeister, and members
of the Micro Politics Group in the Department of Political Science at the University of California, Davis for
helpful comments.

Appendix: Variable Description and Question Wording

The discount factor is based on behavior in the choice game. The game was described to
subjects as follows: “Two prizes will be awarded in class at the conclusion of this study. If
you are chosen to receive the second prize,” your answers to the following series of

\footnote{There was another prize related to a dictator game experiment that came earlier in the omnibus survey. Responses in the other experiment are not correlated with those made in the choice game.}
questions will determine the amount of the award and the date of payment. You will be asked to choose the payment option that you would prefer in each of 20 different payoff alternatives. Note that each of the 20 payoff alternatives will pay $100 in 30 days (option A) or $100 + $x in 60 days (option B), where x differs under each payoff alternative. For each payoff alternative you will select the payment option (A or B) that you would prefer if you are chosen to receive the prize. When the study is completed, a random drawing will be held in class to choose which one of the 20 payoff alternatives will determine the prize and another random drawing will be held to determine the one person who will receive the second prize. When and how much the winner will be paid will be based on the payment option he or she chooses under the payoff alternative selected.

“In the table of alternatives there is a column labeled ‘Annual Interest Rate.’ This is the interest rate required on the initial balance of $100 (option A) that would yield the amount in option B, after accounting for the fact that interest is compounded daily on the initial balance. For comparison, most banks are currently paying 1%–2% interest on savings accounts or certificates of deposits. Most credit card companies are charging college students 12%–16% interest to borrow money. Thus, you have an opportunity to earn money at much higher rates of interest in this study. Below is the table of the payment options for the 20 different alternatives. For payoff alternative 1, would you prefer option A ($100 in 30 days) or option B ($100.17 in 60 days)?” Subjects were asked to make choices over twenty sets of alternatives. Table A1 shows each set of alternatives as they were displayed to the subjects.

Political information is the number of correct answers to the following 8 multiple choice and open answer questions. “Which party currently has the most members in the House of Representatives in Washington?” (Republican/Democrat) “Which party currently has the most members in the Senate in Washington?” (Republican/Democrat) “Who has the final responsibility to decide if a law is constitutional or not?” (President/Congress/Supreme

---

**Appendix 1** Choices available to subjects

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<tr>
<th>Payoff alternative</th>
<th>Payment option A (pays amount ($) below in 30 days)</th>
<th>Payment option B (pays amount ($) below in 60 days)</th>
<th>Annual interest rate (%)</th>
<th>Payment option preferred (choose A or B)</th>
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<tr>
<td>1</td>
<td>100.00</td>
<td>100.17</td>
<td>2.0</td>
<td>A B</td>
</tr>
<tr>
<td>2</td>
<td>100.00</td>
<td>100.25</td>
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</tr>
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Appendix 2  Sufficient statistics

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<td>5</td>
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</table>

Court) ‘‘Whose responsibility is it to nominate judges to the Federal Courts?’’ (President/Congress/Supreme Court) ‘‘What is the job held by William Rehnquist?’’ ‘‘What is the job held by Tony Blair?’’ ‘‘What is the job held by John Ashcroft?’’ ‘‘What is the job held by Bill Frist?’’

Reads the News and Watches the News were based on answers to these two questions: ‘‘During the past week, about how many days did you read a daily newspaper (other than the CALIFORNIA AGGIE) or consult an online news source?’’ and ‘‘During the past week, about how many days did you watch a national network news program on television?’’

Parents’ Income is the answer to: ‘‘Please choose the category that describes the total amount of INCOME earned in 2003 by your PARENTS or GUARDIANS. Consider all forms of income, including salaries, tips, interest and dividend payments, scholarship support, student loans, parental support, social security, alimony, and child support, and others.’’ (1 = $15,000 or under, 2 = $15,001–$25,000, 3 = $25,001–$35,000, 4 = $35,001–$50,000, 5 = $50,001–$65,000, 6 = $65,001–$80,000, 7 = $80,001–$100,000, 8 = over $100,000). Parents’ Education is the average for both parents on ‘‘What was the highest level of education that your father [mother] (or male [female] guardian) completed?’’ 1 = Less than high school, 2 = High school diploma, 3 = Vocational School, 4 = Attended College, 5 = Bachelor’s, 6 = Graduate School.

For external efficacy, we follow Craig, Niemi, and Silver (1990) and Niemi, Craig, and Mattei (1991) by creating an index that sums responses from four questions: ‘‘People like me don’t have any say about what the government does’’, ‘‘I don’t think public officials care much what people like me think’’, ‘‘How much do you feel that having elections makes the government pay attention to what the people think?’’, and ‘‘Over the years, how much attention do you feel the government pays to what the people think when it decides what to do?’’. The first two questions are coded 0 = agree, 0.5 = neither, and 1 = disagree. The third and fourth questions are coded 1 = a good deal, 0.5 = some, and 0 = not much.

For the remaining variables, we follow the coding procedure in Timpone (1998) and the question wording used in the NES. Age is in number of years. Church attendance is an index of religious attendance, 1 = never/no religious preference, 2 = a few times a year,
### Appendix 3  Pearson correlation matrix

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*p < 0.05 for correlations with turnout*
3 = once or twice a month, 4 = almost every week, and 5 = every week. Internal efficacy is a binary response (0 = true, 1 = false) to the question ‘‘Sometimes politics and government seem so complicated that a person like me can’t really understand what’s going on.’’ Strength of party identification is coded 1 = independents and apoliticals, 2 = independents leaning towards a party, 3 = weak partisans, and 4 = strong partisans. Civic duty is coded 1 = agree strongly, 2 = agree somewhat, 3 = neither, 4 = disagree somewhat, and 5 = disagree strongly for ‘‘If a person doesn’t care how an election comes out he shouldn’t vote in it.’’ Female is 1 for female, 0 for male. Nonwhite is 1 for nonwhite, 0 for white. Interest in Politics is the answer to the question ‘‘Some people don’t pay much attention to political campaigns. How interested are you in the 2004 presidential election campaign?’’ (1 = not much interested, 2 = somewhat interested, 3 = very much interested).

References


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

KEVIN DENNY AND ORLA DOYLE*

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 turnouts 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.¹ 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.² 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.³ 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

¹ 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).


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. 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, personality types and political party choice and personality types and volunteering, 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. Recent studies, however, have argued that the decision to vote and the decision to acquire political information are jointly determined. 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

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8 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.

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),\(^\text{10}\) 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.\(^\text{11}\) 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.\(^\text{12}\) 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


\(^\text{11}\) 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).

addition, education may instil a sense of civic duty by fostering democratic values and beliefs and encouraging participation in socially orientated activities.  

Campbell shows that turnout is influenced by the civic culture that prevailed in the high school that the individual attended.  

Education has also been shown to provide individuals with the necessary skills to deal with the bureaucracy of voting.  

Finally, education may also increase political interest.  

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).  

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.

In addition, Larcinese finds that once political information is controlled for, education has no effect on turnout in Britain.  

Yet some studies have found that education does have an impact on turnout in Britain.  

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.  

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.

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

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21. Dee, ‘Are There Civic Returns to Education?’ Milligan, Moretti and Oreopoulos, ‘Does Education Improve Citizenship?’.
22. 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. 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. 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.

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’. 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. 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. 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.

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23 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.

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


27 Luskin, ‘Explaining Political Sophistication’.

By far the most comprehensive study of ability and civic engagement was conducted by Hauser for the United States.29 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.30 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.31 In addition, several authors have identified a negative relationship between openness to experience and conservatism.32 Fowler and Kam find that greater patience is also associated with higher turnout, as the benefits of voting occur after the costs.33

29 Hauser, ‘Education, Ability, and Civic Engagement in the Contemporary United States’.
31 Caprara, Barbaranelli and Zimbardo, ‘Personality Profiles and Political Parties’.
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. 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. 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. 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. 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.

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34 Elshaug and Metzer, ‘Personality Attributes of Volunteers and Paid Workers’.
35 Carlo et al., ‘The Interplay of Traits and Motives on Volunteering’.
36 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.
37 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.
Political Interest and Turnout

Another common explanation capturing variations in turnout rates is interest in politics. 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. Matsusanka 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. In addition, individuals with a greater interest in politics may also derive greater physical 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. 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.

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,

civic voluntarism, cognitive mobilization, minimal rational choice and general incentives) using the 2001 BES.\footnote{Clarke et al., Political Choice in Britain.} 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.\footnote{Pattie and Johnston, ‘A Low Turnout Landslide’.}

As turnout in Britain has been in decline in recent years, particular amongst younger people,\footnote{Andrew Russell, Edward Fieldhouse, Virinder Kalra and Kingsley Purdam, Young People and Voter Engagement in Britain (London: Electoral Commission, 2002).} a number of initiatives including an ‘e-voting’ pilot study\footnote{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.} and the introduction of compulsory citizenship education to the schools curriculum\footnote{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.} 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.\footnote{Milligan, Moretti and Oreopoulos, ‘Does Education Improve Citizenship?; Larcinese, ‘Information Acquisition, Ideology and Turnout’.}

**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.
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?’ 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. 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. 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. 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.

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

50 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.


TABLE 1  Descriptive Statistics

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

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.

invariant to this choice.\textsuperscript{57} In addition, a set of eleven regional dummies at the level of standard economic region is included.\textsuperscript{58}

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.\textsuperscript{59} 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.

\textit{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:

\[ \Pr(y = 1) = F(\beta X), \]

where $F$ is the cumulative normal distribution and $\beta$ is a $1 \times k$ vector of the parameters to be estimated and $X$ is a matrix of $n$ observations on $k$ variables (including a constant).\textsuperscript{60} 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

\textsuperscript{57} The parental class variable is based on seven categories: Professional, Intermediate, Skilled non-manual, Skilled manual, Semi-skilled non-manual, Semi-skilled 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.

\textsuperscript{58} 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’, \textit{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.

\textsuperscript{59} 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.

\textsuperscript{60} Using the ‘dprobit’ routine in \textsc{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. 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.

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. 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.

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.

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61 Sabucedo and Cramer, ‘Sociological and Psychological Predictors of Voting in Great Britain’; Clarke, Sanders, Stewart and Whiteley, ‘Britain (Not) at the Polls’.

62 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).

63 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.

64 Pattie and Johnston, ‘A Low Turnout Landslide’.
<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive Ability (age 11)</td>
<td>–</td>
<td>0.012*</td>
<td>0.021***</td>
</tr>
<tr>
<td>Maths Ability (age 11)</td>
<td>–</td>
<td>(0.007)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>Comprehension Ability (age 11)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Verbal Ability (age 11)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Non-Verbal Ability (age 11)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Impulsive (age 16)</td>
<td>–</td>
<td>–0.007</td>
<td>–0.008</td>
</tr>
<tr>
<td>Even-Tempered (age 16)</td>
<td>–</td>
<td>0.011**</td>
<td>0.012*</td>
</tr>
<tr>
<td>Aggressive (age 16)</td>
<td>–</td>
<td>0.014</td>
<td>0.020**</td>
</tr>
<tr>
<td>Rigid (age 16)</td>
<td>–</td>
<td>–0.006</td>
<td>–0.009</td>
</tr>
<tr>
<td>Withdrawn (age 16)</td>
<td>–</td>
<td>0.005</td>
<td>0.004</td>
</tr>
<tr>
<td>Hardworking (age 16)</td>
<td>–</td>
<td>0.016***</td>
<td>0.018***</td>
</tr>
<tr>
<td>Interest in Politics</td>
<td>0.181***</td>
<td>0.177***</td>
<td>–</td>
</tr>
<tr>
<td>Civic Duty</td>
<td>0.055***</td>
<td>0.048***</td>
<td>0.071***</td>
</tr>
<tr>
<td>Male</td>
<td>–0.043***</td>
<td>–0.041***</td>
<td>–0.009</td>
</tr>
<tr>
<td>Age Left Education</td>
<td>0.013**</td>
<td>0.007</td>
<td>0.009</td>
</tr>
<tr>
<td>Stayed in Education after 16</td>
<td>0.031*</td>
<td>0.018</td>
<td>0.031*</td>
</tr>
<tr>
<td>Married</td>
<td>0.061***</td>
<td>0.056***</td>
<td>0.055***</td>
</tr>
<tr>
<td>Self-Employed</td>
<td>–0.047**</td>
<td>–0.047**</td>
<td>–0.034*</td>
</tr>
<tr>
<td>Union Member</td>
<td>0.046***</td>
<td>0.045***</td>
<td>0.055***</td>
</tr>
<tr>
<td>Parental Social Class at birth</td>
<td>0.009**</td>
<td>0.009*</td>
<td>0.009**</td>
</tr>
<tr>
<td>Regions</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pseudo $R^2$</td>
<td>0.094</td>
<td>0.099</td>
<td>0.053</td>
</tr>
<tr>
<td>Observations</td>
<td>4,668</td>
<td>4,668</td>
<td>4,668</td>
</tr>
</tbody>
</table>

**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, Särlvik and Alt and of Crewe, who find that the middle class show higher participation rates than lower socio-economic groups.\footnote{Ivor Crewe, Bo Särlvik and Jim Alt, ‘Partisan Dealignment in Britain 1964–1974’, \textit{British Journal of Political Science}, 7 (1977), 129–90; Crewe, ‘Electoral Participation’.

66}  
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 \textit{et al.}, who find that emotional stability has no impact on support for political parties.\footnote{Caprara, Barbarnelli and Zimbardo, ‘Personality Profiles and Political Parties’.

67}  

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.\footnote{Konrad Lorenz, \textit{On Aggression} (San Diego, Calif.: Harcourt Brace, 1963).} Whatever the underlying mechanism for aggression is, it seems very plausible that
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.\textsuperscript{68} 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

\textsuperscript{68} Verba, Schlozman and Brady, \textit{Voice and Equality}; Nie, Junn and Stehlik-Barry, \textit{Education and Democratic Citizenship in America}; Neuman, \textit{The Paradox of Mass Politics}.  
### Table 3  
**Bivariate Probit Determinants of Turnout and Political Interest**

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

*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.69

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

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.\(^{70}\)

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.\(^{71}\)

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


\(^{71}\) 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, 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.

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72 Russell, Fieldhouse, Kalra and Purdam, *Young People and Voter Engagement in Britain*. 

Personality traits, political attitudes and the propensity to vote

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Abstract. This article examines the link between personality traits, political attitudes and the propensity to vote in elections, using an Internet panel survey conducted in two Canadian provinces at the time of the 2008 federal election and the subsequent provincial elections. It first establishes that the two most proximate attitudes that shape one’s propensity to vote are political interest and sense of civic duty. The article then look at specific personality traits (altruism, shyness, efficacy and conflict avoidance) that could affect level of political interest, civic duty and the propensity to vote in elections. In the last part of the analysis, a model is proposed and tested, according to which the impact of personality traits is indirect, being mediated by interest and duty. The article shows that the data are consistent with such an interpretation.

Keywords: personality, political attitudes, turnout, altruism, civic duty, political interest.

The decision to vote or not to vote can be examined from two complementary perspectives. One can look at characteristics of elections that make people more or less prone to vote in some contexts than in others. Franklin (2004) is perhaps the best illustration of such an approach. Or one can examine the characteristics of people and determine what types of individuals are more inclined to vote in general. This study belongs to the latter approach.

There are three basic reasons why people may decide to vote rather than abstain in an election (Blais 2010): they may perceive the benefits to outweigh the costs; they may simply wish to express their viewpoint; or they may adhere to the norm that the ‘good’ citizen ought to vote in elections. From such a perspective, we would expect the general propensity to vote in elections to be driven by two basic political attitudes. The benefits of voting and the urge to express an opinion depend partly on the characteristics of the elections and partly on characteristics of people. We focus on the latter and contend that one’s overall level of political interest is the best individual-level predictor of perceiving high benefits and low cost in voting, as well as having an opinion about which is the best candidate or party in an election. The second attitude, sense of civic duty, corresponds to the third motivation: adherence to the norm that the ‘good’ citizen ought to vote.1
We thus wish to establish in the first part of this article that the general propensity to vote in elections is driven primarily by political interest and sense of civic duty; other political attitudes are much less influential. This raises the question of the origin of these attitudes. Again it makes sense to assume that they may be shaped in part by characteristics of the political context. For instance, the degree of un-civility in the political debate may contribute to lower trust in politicians and lower interest in political affairs (Mutz & Reeves 2005). However, we may also suppose that certain types of individuals are more prone to think in terms of moral obligations and more attracted to the political sphere, and that these people are just more likely to go to the polls. This is the second type of interpretation that we wish to explore here. To that effect, we use a survey containing a small set of items designed to measure personality traits, and we determine whether and how they are related to sense of civic duty and political interest. We show evidence that personality traits affect the propensity to vote through these two attitudes.

**Political attitudes and the propensity to vote**

The first claim that we make is that the two most crucial proximate political attitudes that affect the propensity to vote are sense of civic duty and political interest. Sense of civic duty and political interest are indeed the two political attitudes that are the most constantly invoked in the turnout literature. *The American Voter* (Campbell et al. 1960: 156) identifies four ‘psychological’ factors in the voting turnout chapter: sense of citizen duty; interest in the campaign; concern over the election outcome; and sense of political efficacy. Duty and interest appear on the list, as well as political efficacy, to which we shall return below. As for concern over the election outcome, this is not a general attitude as it is specific to an election.

Political interest also plays a central role in Verba et al.’s (1995: Table 12.7) model of voting. The model includes political interest, political information, political efficacy and party identification, with interest emerging as the most powerful factor. Yet, in the analysis of the reasons that activists give for being involved, the authors distinguish material benefits and social, civic and policy gratifications, and they report that civic gratifications (the first example being ‘my duty as a citizen’) are by far the most widespread. Likewise, in his study of the decision to vote or not to vote, Blais (2000) focuses on the merits and limits of the rational choice approach, but he points out that the two additional variables exogenous to the rational choice model that are included in his empirical analyses – interest and duty – come out as more influential than benefits, costs or the perceived probability of being pivotal. Finally, Clarke
et al. (2004: Chapter 8) consider a whole gamut of attitudes in their examination of the factors that affect turnout (interest, trust, efficacy, duty, knowledge and partisanship), but the two most important attitudes turn out to be interest and duty (see Clarke et al. 2004: Table 8.9).

There are thus good reasons to believe that duty and interest are the two strongest attitudinal determinants of the general propensity to vote in elections. We present below empirical evidence to support our contention. We use an Internet panel survey conducted in the provinces of British Columbia and Quebec, first at the time of the Canadian federal election that took place in October 2008 and then at the time of the two provincial elections that were subsequently held in Quebec in December 2008 and in British Columbia in May 2009. The sampling frame was designed to match the demographic profile of each province (as revealed by census data) as well as the distribution of political interest (as indicated in previous surveys).

The initial sample sizes are 2,013 in Quebec and 2,004 in British Columbia. All these respondents were invited to respond to a second (very similar) questionnaire at the time of the provincial elections. We have 1,023 Quebec respondents and 998 British Columbia respondents in the second wave, for a re-interview rate of 50 per cent. The surveys were conducted in the last week of the campaigns in order to tap voters’ views just before the election, before they knew the outcome and adjusted their perceptions and evaluations.

The whole survey, including about 80 questions, is entirely focused on the decision to vote or not to vote, and most questions were repeated in both waves. The questionnaire includes a whole gamut of questions tapping general political attitudes, a small section on personality measures to be introduced later on, plus items on networks and mobilisation and opinions about the specific candidates and parties and perceptions of the closeness of the election.

The dependent variable for this analysis is the general propensity to vote. The variable is an index combining four indicators: the likelihood of voting in the upcoming federal, provincial, and municipal elections, and reported turnout in the federal election (see the Appendix for information about the variables).

The two main independent variables are sense of civic duty and political interest. The latter is also an index combining reported level of interest in international, federal, provincial and local politics. Sense of duty, for its part, combines six indicators: two agree/disagree statements about whether it is a duty to vote in an election and whether the respondent would feel guilty not to vote, a question about the importance for a good citizen to vote in elections, and questions about whether people feel that voting is a duty or a choice in federal, provincial and local elections.²

Table 1 shows that the propensity to vote is powerfully related to interest and duty. We expect a strong negative interaction effect between these two
Table 1. Political attitudes and propensity to vote

<table>
<thead>
<tr>
<th></th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
<th>Column 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interest</strong></td>
<td>0.77*** (0.06)</td>
<td>0.75*** (0.06)</td>
<td>0.73*** (0.06)</td>
<td>1.41** (0.43)</td>
<td>1.02** (0.36)</td>
</tr>
<tr>
<td><strong>Duty</strong></td>
<td>0.97*** (0.05)</td>
<td>0.96*** (0.05)</td>
<td>0.95*** (0.05)</td>
<td>4.11*** (0.54)</td>
<td>2.73*** (0.40)</td>
</tr>
<tr>
<td><strong>Interest x Duty</strong></td>
<td>-0.97*** (0.08)</td>
<td>-0.96*** (0.08)</td>
<td>-0.97*** (0.08)</td>
<td>-2.69** (0.81)</td>
<td>-1.33* (0.64)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>0.0017*** (0.0003)</td>
<td>0.0018*** (0.0003)</td>
<td>0.020*** (0.0004)</td>
<td>0.020*** (0.0004)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>-0.01 (0.01)</td>
<td>-0.01 (0.01)</td>
<td>-0.00 (0.11)</td>
<td>-0.06 (0.11)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>0.00 (0.02)</td>
<td>-0.01 (0.02)</td>
<td>0.09 (0.25)</td>
<td>0.29 (0.24)</td>
<td></td>
</tr>
<tr>
<td>Partner</td>
<td>-0.01 (0.01)</td>
<td>-0.01 (0.01)</td>
<td>0.08 (0.12)</td>
<td>0.08 (0.12)</td>
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<tr>
<td>Ownership</td>
<td>0.02 (0.01)</td>
<td>0.02 (0.01)</td>
<td>0.04 (0.12)</td>
<td>0.04 (0.12)</td>
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<tr>
<td>Religiosity</td>
<td>0.00 (0.01)</td>
<td>0.00 (0.01)</td>
<td>0.02 (0.12)</td>
<td>0.04 (0.12)</td>
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<td>Race</td>
<td>-0.02 (0.02)</td>
<td>-0.02 (0.02)</td>
<td>-0.37 (0.19)</td>
<td>-0.34 (0.18)</td>
<td></td>
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<tr>
<td>Immigrant</td>
<td>-0.00 (0.02)</td>
<td>-0.00 (0.01)</td>
<td>-0.05 (0.19)</td>
<td>-0.07 (0.19)</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>0.04* (0.02)</td>
<td>0.04 (0.02)</td>
<td>0.37 (0.20)</td>
<td>0.41* (0.20)</td>
<td></td>
</tr>
<tr>
<td>Minority language</td>
<td>-0.02* (0.01)</td>
<td>-0.02 (0.01)</td>
<td>0.27 (0.18)</td>
<td>0.27 (0.19)</td>
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</tr>
<tr>
<td>British Columbia</td>
<td>-0.01 (0.01)</td>
<td>-0.01 (0.01)</td>
<td>-0.03 (0.11)</td>
<td>-0.05 (0.11)</td>
<td></td>
</tr>
<tr>
<td>Internal efficacy</td>
<td>0.02 (0.02)</td>
<td>0.13 (0.24)</td>
<td>0.29 (0.19)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External efficacy</td>
<td>0.06 (0.03)</td>
<td>0.50 (0.31)</td>
<td>0.47 (0.26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partisanship</td>
<td>0.01 (0.01)</td>
<td>0.26 (0.19)</td>
<td>0.18 (0.17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information</td>
<td>0.00 (0.02)</td>
<td>0.39 (0.22)</td>
<td>0.31 (0.21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.17*** (0.04)</td>
<td>0.10* (0.04)</td>
<td>0.08 (0.04)</td>
<td>-2.57*** (0.36)</td>
<td>-2.17*** (0.32)</td>
</tr>
<tr>
<td>Adj. R²/McFadden's R²</td>
<td>0.56</td>
<td>0.58</td>
<td>0.58</td>
<td>0.41</td>
<td>0.35</td>
</tr>
<tr>
<td>N</td>
<td>1,838</td>
<td>1,838</td>
<td>1,838</td>
<td>1,838</td>
<td>1,838</td>
</tr>
</tbody>
</table>

Notes: *** Significant at 0.001 level; ** significant at 0.01 level; * significant at 0.05 level. Columns 1–3 are OLS regressions. Columns 4 and 5 are Probit estimations.
attitudes as the impact of civic duty should be particularly strong among those least interested in politics (see Blais & Achen 2009); that prediction is fully supported by the data. It can be seen that interest and duty together account for more than half of the variance in the propensity to vote. Adding socio-demographic characteristics (column 2) does not affect the impact of interest and duty, and hardly increases the explained variance. Adding other attitudes (i.e., internal and external efficacy, partisanship and information) is also inconsequential (column 3); these other attitudes have little direct impact.

The dependent variable is the propensity to vote and includes mostly indicators of subjective likelihood of voting as well as reported turnout in the federal election. Because we are interested in the impact of political attitudes and personality on the general propensity to vote rather than on the decision to vote or not to vote in a specific election, we believe that the use of a general index based mostly on expressed intention to vote is justified. Still, it is a legitimate concern whether the same relationships hold with a behavioural indicator. We expect interest and duty to have a somewhat weaker impact on voting in a specific election because many election-specific factors are bound to come into play, but these two attitudes should still be very influential, even after controlling for socio-demographic characteristics – more so than partisanship, efficacy and information. This is precisely what we observe in column 4. Finally, there is the possibility of reverse causation – that is, that it is the propensity to vote that causes political interest and duty. While we are not able to completely rule out that possibility, we can determine what happens when we use only wave 1 indicators for the independent variables and reported vote in wave 2 as the dependent variable. As can be seen in column 5, the relationships weaken slightly, suggesting some rationalisation effects, but the basic patterns remain very much the same.

These data provide strong support for our initial claim that the most important proximate political attitudes when it comes to understanding why some individuals are generally more inclined to vote than others are political interest and sense of civic duty. However, the question then becomes: Why are some people more interested in politics than others, and why are some more inclined to believe that it is a moral obligation to vote? While a full answer to this question is beyond the scope of this study, we wish to explore one particular avenue – that one’s personality is a relevant factor.

Duty, interest, voting and personality traits

It makes sense to believe that one’s personality figures among the more distant factors that affect one’s level of interest in politics, one’s sense of civic duty, and eventually one’s propensity to vote in elections. We are interested in person-
ality traits, which are defined to be ‘dimensions of individual differences in tendencies to show consistent patterns of thought, feelings and actions’ (McCrae & Costa 1990: 23). They are enduring dispositions, they tend to be stable over time (McCrae & Costa 1994), and they affect thought, feelings and behaviour in many different realms of life. Personality traits have substantial biological influences (Bouchard & Loehlin 2001; Bouchard & McGue 2003; Revelle 2005) which, of course, contribute to their stability.

Political attitudes also tend to be relatively stable. Political interest, in particular, has been shown to be relatively constant over the life course (Prior 2008). Yet the existing evidence suggests that it is likely to develop later in life than personality traits. Perhaps most telling in this regard is the finding that there is only a weak relationship between the political interest of parents and their offspring (Jennings et al. 2001; Zuckerman et al. 2007). There is also some evidence that the development of political interest among teenagers is partly dependent on their social networks (Dostie-Goulet 2009).

We know less about the development and stability of sense of civic duty. Campbell (2006) provides some evidence that norms of civic engagement can be shaped by the school environment, but again it makes sense to assume that these norms develop later in life and are more susceptible to change over time than personality traits. The model that we propose to test is a rather simple one in which personality traits influence general political attitudes, especially duty and interest, which in turn shape one’s propensity to vote in an election. The question then becomes: Which personality traits should we expect to affect the propensity to vote?

There are two avenues for exploring the potential impact of personality traits on the propensity to vote. The first is to focus on the ‘big five’ personality factors (extroversion, agreeableness, conscientiousness, emotional stability and openness to experience) that have been established in the personality literature as capturing the most important general differences in personality across individuals (Digman 1990; Goldberg 1993; Ozer & Reise 1994; Saucier & Goldberg 1998). This is the avenue followed by Mondak and Halperin (2008), Mondak et al. (2010) and Gerber et al. (2008, 2009).

This approach has produced mixed results. Mondak and Halperin (2008: Table 3) report no significant correlation between any of the ‘big five’ personality factors and voter turnout. Gerber et al. (2008, 2009) find somewhat more positive results. In their estimations of reported turnout with three different datasets, extroversion and emotional stability are significant in two cases out of three, and consciousness once (see Gerber et al. 2008: Tables 2A, 2B; Gerber et al. 2009: Table 3A). Mondak et al. (2010) report turnout to be associated positively with openness to experience, and negatively with emotional stability. The findings are not very consistent across the various studies.
We have decided to focus on four specific traits that we thought could be related to interest, duty and the propensity to vote: altruism, shyness, efficacy and conflict avoidance. If we accept that the rational choice for an egocentric citizen who wishes to maximise his or her personal utility is to abstain, given the low probability of casting a decisive vote (Blais 2000), it makes sense to suppose that the propensity to vote is related to how egocentric or altruist one is. Indeed, Fowler (2006) shows that altruism, measured through allocations in a dictator game, is significantly correlated with turnout.

The altruism scale is made of three indicators. The two agree/disagree items are borrowed from Feldman and Steenbergen’s (2001) humanitarian scale. Humanitarianism ‘may be defined as a sense of responsibility for one’s fellow human beings that translates into the belief that one should help those who are in need’ (Feldman & Steenbergen 2001: 660). As the authors note, it overlaps with concepts such as ‘social benevolence’ and ‘empathetic unselfishness’. The third indicator comes from responses to a dictator game. Respondents were told that two prizes of CAN$100 would be drawn at the end of the survey and were asked how much of that amount they would want to keep and how much they would want to give to an anonymous individual if they were to win a draw. Dictator game allocations indicate people’s willingness to improve the material welfare of others at a cost to themselves and provide a revealed measure of altruism (see Benz & Meier (2008), Dawes & Fowler (2007) and Loewen (2008) for a validation of such a measure).

Shyness has been defined as ‘discomfort and inhibition in the presence of others’ (Jones et al. 1986: 629) and ‘might be best described as involving (a lack of) social facility or effectiveness’. To the extent that political participation is a social activity, we expect those who are shy to avoid such involvement. People who are shy may also be less integrated into their social milieu, and they may therefore be less exposed to social pressures for fulfilling one’s civic duty. Shyness is measured by two items in the twenty-item shyness scale proposed by Cheek and Melchior (1985).

Personal efficacy corresponds to ‘feelings of mastery over the self and the environment’ (Campbell et al. 1960: 517). As Fernández-Ballesteros et al. (2007: 107) point out: ‘[U]nless people believe they can produce desired outcomes . . . they have little incentives to act.’ Such sentiment of personal self-efficacy could transfer into the political realm and lead to feelings of internal and external political efficacy – feelings that have been shown to be correlated with the decision to vote (Clarke et al. 2004). It is tapped by two items found in the Pearlin mastery index of general self-efficacy, which is widely used in psychology (Gecas 1989; Pearlín et al. 1981), and has been utilised by Condon and Holleque (2008) to account for the propensity to participate in politics among first-time voters.
The fourth personality trait is conflict avoidance. Politics is very much about finding solutions or compromises for groups of people with opposite interests and values. We expect people who find it personally difficult to deal with conflicting situations to be somewhat repelled by politics and to be less inclined to go to the polls. Mutz (2002), in particular, pays attention to the role of conflict avoidance in the decision to vote or not to vote. Her main interest is in the effect of cross-cutting exposure on intention to vote, but she shows a substantial interaction effect: cross-cutting exposure depresses turnout only among those who score high on conflict avoidance. This finding is in line with that of Denny and Doyle (2008), who report that ‘aggressive’ individuals are more likely to vote. We note, however, that Ulbig and Funk (1999) find no correlation between conflict avoidance and voting.

Our conflict avoidance scale is based on three agree/disagree statements borrowed and adapted from the civil orientation towards conflict within the family scale utilised by Mutz (2002; see McLeod & Chaffee 1972). The initial items asked about one’s parents’ attitude and behaviour when one was growing up. In this study, the statements are framed in general terms about the merits and limits of conflicting discussions.

Table 2 shows the relationship between the four personality traits and political interest, civic duty and the propensity to vote. It can be seen that political interest is more strongly influenced by personality than sense of civic duty. It makes sense that conflict avoidance would contribute more to reducing one’s level of interest in politics than sense of civic duty. Altruism and shyness are associated with both interest and duty. People who are concerned with the well-being of others seem more interested in following what is going on in society at large and are more prone to think in terms of moral obligations towards the polity. Shyness leads to opposite attitudes. Finally, personal efficacy is correlated with duty, but not with political interest. Those who feel in command of their life may be more inclined to believe that they need to make the ‘right’ decisions and that voting is one of the ‘good’ things that one should do.

Table 2 also indicates how the propensity to vote is correlated with the four personality traits. There is support for the hypotheses that the propensity to vote is stronger among those who are more altruist and who have a stronger sense of personal efficacy. Conflict avoidance does not appear to matter, which may not be surprising given the inconsistent findings reported in previous studies (Mutz 2002; Ulbig & Funk 1999). The coefficient associated with shyness has the correct sign and its magnitude is similar to those associated with altruism and efficacy.

These findings suggest that personality traits do matter. They do affect political interest and sense of civic duty as well as the propensity to vote. The
Table 2. The impact of personality traits on political attitudes and propensity to vote

<table>
<thead>
<tr>
<th></th>
<th>Interest B/(s.e.)</th>
<th>Duty B/(s.e.)</th>
<th>Vote scale B/(s.e.)</th>
<th>Voted B/(s.e.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Altruism</strong></td>
<td>0.23*** (0.05)</td>
<td>0.16** (0.06)</td>
<td>0.12* (0.05)</td>
<td>0.81* (0.33)</td>
</tr>
<tr>
<td><strong>Shyness</strong></td>
<td>-0.18** (0.06)</td>
<td>-0.13* (0.06)</td>
<td>-0.14* (0.06)</td>
<td>-0.11 (0.39)</td>
</tr>
<tr>
<td><strong>Efficacy</strong></td>
<td>0.05 (0.04)</td>
<td>0.15** (0.05)</td>
<td>0.11* (0.05)</td>
<td>0.82** (0.31)</td>
</tr>
<tr>
<td><strong>Conflict avoidance</strong></td>
<td>-0.30*** (0.05)</td>
<td>-0.10 (0.05)</td>
<td>-0.04 (0.05)</td>
<td>0.31 (0.32)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>0.0033*** (0.0005)</td>
<td>0.0023*** (0.0005)</td>
<td>0.0034*** (0.0005)</td>
<td>0.020*** (0.003)</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td>0.05*** (0.01)</td>
<td>0.00 (0.01)</td>
<td>0.00 (0.01)</td>
<td>0.06 (0.10)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td>0.21*** (0.03)</td>
<td>0.20*** (0.03)</td>
<td>0.16*** (0.03)</td>
<td>1.02*** (0.21)</td>
</tr>
<tr>
<td><strong>Partner</strong></td>
<td>-0.02 (0.01)</td>
<td>0.00 (0.02)</td>
<td>-0.02 (0.02)</td>
<td>-0.02 (0.10)</td>
</tr>
<tr>
<td><strong>Ownership</strong></td>
<td>0.02 (0.02)</td>
<td>0.04* (0.02)</td>
<td>0.04* (0.02)</td>
<td>0.18 (0.11)</td>
</tr>
<tr>
<td><strong>Religiosity</strong></td>
<td>0.03* (0.01)</td>
<td>0.05*** (0.02)</td>
<td>0.03* (0.01)</td>
<td>0.17 (0.10)</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td>-0.04 (0.03)</td>
<td>-0.05 (0.03)</td>
<td>-0.05 (0.03)</td>
<td>-0.34* (0.17)</td>
</tr>
<tr>
<td><strong>Immigrant</strong></td>
<td>0.01 (0.02)</td>
<td>0.01 (0.03)</td>
<td>0.01 (0.02)</td>
<td>0.03 (0.17)</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td>0.02 (0.03)</td>
<td>0.04 (0.03)</td>
<td>0.07* (0.03)</td>
<td>0.47* (0.19)</td>
</tr>
<tr>
<td><strong>Minority language</strong></td>
<td>0.03 (0.02)</td>
<td>0.01 (0.02)</td>
<td>-0.02 (0.02)</td>
<td>0.13 (0.15)</td>
</tr>
<tr>
<td><strong>British Columbia</strong></td>
<td>0.06*** (0.02)</td>
<td>0.01 (0.02)</td>
<td>-0.01 (0.02)</td>
<td>-0.16 (0.10)</td>
</tr>
<tr>
<td><strong>Constant</strong></td>
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<td>0.21** (0.06)</td>
<td>0.44*** (0.07)</td>
<td>-1.79*** (0.41)</td>
</tr>
</tbody>
</table>

Notes: *** Significant at 0.001 level; ** significant at 0.01 level; * significant at 0.05 level. Columns 1–3 are OLS regressions. Column 4 is a Probit estimation.
most consistent findings concern altruism, which is positively associated with each dependent variable. Note that altruism is more strongly correlated with political attitudes than with the propensity to vote per se – a point that we revisit below.

There could be a concern here again that our propensity to vote index is mostly based on expressed intention to vote. Are the patterns the same if we rely on reported vote in the federal election? The last column of Table 2 indicates that altruism and efficacy also come out as significant predictors of reported turnout. The results are not as consistent with respect to shyness, which appears not to be correlated with reported vote. In short, there is relatively strong support for the view that personality traits affect attitudes such as political interest and sense of civic duty as well as the overall propensity to vote. In the last section, we present evidence which suggests that the impact of personality on the propensity to vote is indirect – that is, it is mediated by political attitudes.

**Personality, political attitudes and the propensity to vote**

Our assumption is that personality traits develop earlier in life and tend to be more stable than attitudes toward politics, which are formed somewhat later as people become more exposed to political affairs. As a consequence, the impact of personality on the likelihood of voting is basically indirect – that is, personality contributes (in combination with other factors, most especially the political environment) to nourishing attitudes such as interest and duty, which themselves more directly affect the decision to vote or not to vote.14

We are not in a position to fully demonstrate the validity of such a model. We would need a long-term longitudinal survey to ascertain the relative stability of personality traits and political attitudes. Such data do not exist. However, as was pointed out above, the available evidence does suggest that personality traits are developed earlier and are somewhat more stable than attitudes such as political interest. What we can do is show that the data are consistent with our interpretation.

Table 3 shows the findings when propensity to vote is regressed on both political attitudes and personality traits. If the former mediate the impact of the latter, we should observe that the impact of altruism and efficacy on the propensity to vote (see Table 2) disappears when we introduce political interest and civic duty. This is precisely what we see in Table 3.15 The same patterns emerge when we use only wave one indicators of duty and interest (column 2) and when we use a behavioural indicator (whether the person voted in the
federal election) rather than the general propensity to vote index (column 3). The direct impact of personality vanishes when interest and duty are taken into account.\textsuperscript{16}

In the absence of (long) panel data, it is not possible to fully demonstrate that the impact of personality is indirect, being mediated by crucial political attitudes that more directly affect one’s propensity to vote. All that we can say is that the data presented above are consistent with such an interpretation and that this is a plausible story, given what we know about the development of personality traits and political attitudes as well as the motivations that compel people to vote or to abstain.

\textsuperscript{16} In the absence of (long) panel data, it is not possible to fully demonstrate that the impact of personality is indirect, being mediated by crucial political attitudes that more directly affect one’s propensity to vote. All that we can say is that the data presented above are consistent with such an interpretation and that this is a plausible story, given what we know about the development of personality traits and political attitudes as well as the motivations that compel people to vote or to abstain.

\textsuperscript{16} In the absence of (long) panel data, it is not possible to fully demonstrate that the impact of personality is indirect, being mediated by crucial political attitudes that more directly affect one’s propensity to vote. All that we can say is that the data presented above are consistent with such an interpretation and that this is a plausible story, given what we know about the development of personality traits and political attitudes as well as the motivations that compel people to vote or to abstain.

Table 3. Personality traits, political attitudes and propensity to vote

<table>
<thead>
<tr>
<th></th>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vote scale</td>
<td>Vote scale, w1</td>
<td>Voted, w1</td>
</tr>
<tr>
<td></td>
<td>B/(s.e.)</td>
<td>B/(s.e.)</td>
<td>B/(s.e.)</td>
</tr>
<tr>
<td>Interest</td>
<td>0.75*** (0.06)</td>
<td>0.59*** (0.06)</td>
<td>1.38*** (0.33)</td>
</tr>
<tr>
<td>Duty</td>
<td>0.96*** (0.05)</td>
<td>0.73*** (0.05)</td>
<td>2.74*** (0.39)</td>
</tr>
<tr>
<td>Interest x duty</td>
<td>-0.96*** (0.08)</td>
<td>-0.70*** (0.08)</td>
<td>-1.19 (0.63)</td>
</tr>
<tr>
<td>Altruism</td>
<td>0.03 (0.04)</td>
<td>-0.02 (0.04)</td>
<td>0.20 (0.37)</td>
</tr>
<tr>
<td>Shyness</td>
<td>-0.05 (0.05)</td>
<td>-0.05 (0.05)</td>
<td>0.35 (0.43)</td>
</tr>
<tr>
<td>Efficacy</td>
<td>0.03 (0.03)</td>
<td>0.04 (0.04)</td>
<td>0.63 (0.34)</td>
</tr>
<tr>
<td>Conflict avoidance</td>
<td>0.02 (0.03)</td>
<td>0.02 (0.04)</td>
<td>0.75* (0.37)</td>
</tr>
<tr>
<td>Age</td>
<td>0.0017*** (0.0003)</td>
<td>0.0019*** (0.0004)</td>
<td>0.019*** (0.004)</td>
</tr>
<tr>
<td>Male</td>
<td>-0.01 (0.01)</td>
<td>-0.01 (0.01)</td>
<td>0.00 (0.11)</td>
</tr>
<tr>
<td>Education</td>
<td>-0.00 (0.02)</td>
<td>0.04 (0.02)</td>
<td>0.52* (0.24)</td>
</tr>
<tr>
<td>Partner</td>
<td>-0.01 (0.01)</td>
<td>-0.01 (0.01)</td>
<td>0.02 (0.12)</td>
</tr>
<tr>
<td>Ownership</td>
<td>0.02 (0.01)</td>
<td>0.02 (0.01)</td>
<td>0.08 (0.12)</td>
</tr>
<tr>
<td>Religiosity</td>
<td>0.00 (0.01)</td>
<td>0.00 (0.01)</td>
<td>0.01 (0.11)</td>
</tr>
<tr>
<td>Race</td>
<td>-0.02 (0.02)</td>
<td>-0.03 (0.02)</td>
<td>-0.30 (0.19)</td>
</tr>
<tr>
<td>Immigrant</td>
<td>-0.00 (0.01)</td>
<td>-0.00 (0.02)</td>
<td>-0.05 (0.19)</td>
</tr>
<tr>
<td>Income</td>
<td>0.04 (0.02)</td>
<td>0.04* (0.02)</td>
<td>0.41* (0.21)</td>
</tr>
<tr>
<td>Minority language</td>
<td>-0.03* (0.01)</td>
<td>-0.03* (0.01)</td>
<td>0.15 (0.17)</td>
</tr>
<tr>
<td>British Columbia</td>
<td>-0.02 (0.01)</td>
<td>-0.01 (0.01)</td>
<td>-0.21 (0.12)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.07 (0.06)</td>
<td>0.19** (0.06)</td>
<td>-2.79*** (0.49)</td>
</tr>
</tbody>
</table>

Notes: *** Significant at 0.001 level; ** significant at 0.01 level; * significant at 0.05 level.
Columns 1 and 2 are OLS regressions. Column 3 is a Probit estimation.
Discussion and conclusion

The purpose of this article has been to explore the link between personality traits and the propensity to vote. In this study, we have examined the potential impact of four specific personality traits – altruism, shyness, personal efficacy and conflict avoidance – which we have good reasons to believe can affect both the propensity to vote and political attitudes that have been shown to be associated with the decision to vote or not to vote. To that end, we have used an Internet panel survey conducted in two Canadian provinces whose focus is entirely on turnout (and thus contains a host of questions on attitudes related to turnout), and includes a small battery of questions on personality.

We have shown that three of the four personality traits – altruism, shyness and efficacy – measured in the survey do affect the propensity to vote. This supports the basic intuition that underlies this research. If one’s personality influences how often one smiles, what kind of music one likes and how one dresses (Gosling 2008; Gerber et al. 2009: 1), then why should it not have some impact on whether one finds politics interesting or boring and on whether one believes that it is a civic duty to vote?

The findings of this study are broadly consistent with those of recent research that has shown that a whole gamut of political attitudes and behaviours are correlated with personality traits (see Caprara et al. 2006; Mondak & Halperin 2008; Gerber et al. 2008, 2009; Vecchione & Caprara 2009; Mondak et al. 2010). Our study contributes to the growing consensus that psychological factors are as relevant as sociological, economic and political factors when it comes to understanding why some people vote in elections and others do not.

What is less clear is which personality traits matter the most. Two avenues of research have been explored. The first is to start with personality, and then the standard approach is to use the well established ‘big five’ factors. As we have noted above, the findings with respect to turnout have been mixed. The other approach, utilised here, is to start with the dependent variable, the propensity to vote, and to focus on specific personality traits that we expect to be most relevant to the turnout decision and to the proximate political attitudes that have been shown to affect that decision. Both approaches have their merits and limits. One question that emerges from studies like this one is: How easily could we reinterpret the findings reported here through the ‘big five’ model? Clearly shyness seems to correspond pretty well to introversion/extroversion. A case could be made that altruism overlaps with agreeableness and efficacy overlaps with openness to experience. Future research should directly compare whether the ‘big five’ factors enable us to predict the propensity to vote as well as more specific traits like those explored in this study.
We would point out in this regard that altruism is the personality trait that appears most consistently related to the propensity to vote and related attitudes. This finding makes a lot of sense. The rational choice literature has established that the egocentric individual should come to the conclusion that the rational decision in an election is to abstain. That being the case, a plausible hypothesis is that one reason why so many people vote is that they are not purely egocentric. In other words, we find it theoretically compelling to believe that altruism enhances the propensity to vote as well as to get involved in other forms of political activity (Fowler & Kam 2007).

Perhaps the most important contribution of this article is to present evidence to support the view that the impact of personality is indirect, that it is mediated by political attitudes. This view is consistent with the claim made by personality research that ‘personality can be viewed as something that pre-dates, rather than is caused by, social and political influences.’ (Gerber et al. 2009: 3–4). From such a perspective, personality traits can be construed as primary distant variables which shape, together with other environmental factors, the proximal political attitudes upon which political science research typically focuses.

In that vein, we have established that the two most crucial attitudes that explain the general propensity to vote are political interest and a sense of civic duty. We have also established that these two variables interact – that is, the impact of interest decreases as sense of duty increases. We have also shown that personality traits are correlated with these two crucial attitudes and that their effect on turnout vanishes when duty and interest are incorporated. All these results are consistent with the hypothesis that the impact of personality is mediated by political attitudes. We acknowledge that more work is needed, especially with long-term panel data, to more rigorously test the mediation hypothesis. We can say, however, that the mediation model makes theoretical sense and that the empirical findings presented here provide initial support.

Appendix. Construction of variables and question wordings

(Upper bound values between brackets)

*Propensity to vote scale* (waves 1 and 2)
(1 = Highest propensity)
(4 items Cronbach’s $\alpha = 0.83$)
The scale corresponds to the mean of four indicators: likelihood to vote in Federal, Provincial or Municipal elections (pre-election survey), and reported vote for the Federal election (post-election survey).
Federal, Provincial, Municipal (likelihood, wave 1)
(1 = Certain to vote/I have already voted; 0.8 = Very likely to vote; 0.6 = Somewhat likely to vote; 0.4 = Somewhat unlikely to vote; 0.2 = Very unlikely to vote; 0 = certain that will not vote)

Federal (likelihood, wave 1)
• How likely are you to vote in this federal election?

Provincial (likelihood, wave 1)
• How likely are you to vote in this provincial election?

Municipal (likelihood)
  British Columbia (wave 1):
  • As you may know, municipal elections will be held next month (November) in British Columbia. How likely are you to vote in your municipal election?

  Quebec (wave 2):
  • As you may know, there will be municipal elections in November 2009. How likely are you to vote in your municipal election?

Federal (reported, wave 2)
• Did you vote in the last federal election?
(1 = yes, 0 = no/I don’t remember)

Interest (waves 1 and 2)
(1 = Very interested in politics)
(8 items, Cronbach’s α = 0.92)
(4 items, Cronbach’s α = 0.90, wave 1 only)
In general, how interested are you in politics?
Use a 0 to 10 scale where 0 means not interested at all and 10 means extremely interested.
• International politics
• Federal politics
• Provincial politics
• Local politics

Duty (waves 1 and 2)
(1 = Strong sense of duty)
(12 items Cronbach’s α = 0.92)
(6 items Cronbach’s α = 0.88, wave 1 only)
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: I would feel guilty if I did not vote in an election?

• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: It is every citizen’s duty to vote in an election?
  – In a federal election.
  – In a provincial election.
  – In a local election.

For some voting is a DUTY. They feel that they should vote in every election however they feel about the candidates and parties. For some, voting is a CHOICE. They feel free to vote or not to vote in an election depending on how they feel about the candidates and parties. For you personally, is voting first and foremost a DUTY or a CHOICE?

(If appropriate) How strongly do you feel personally that voting is a duty?

• There are different views about what it means to be a good citizen. For you personally, how important is it for a good citizen to do the following things. Use a scale from 0 to 10 where 0 means not at all important and 10 extremely important.
  – Vote in elections.

Internal efficacy (waves 1 and 2)
(1 = Internally efficacious)
(2 items, Cronbach’s $\alpha = 0.75$)
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: Sometimes politics seems so complicated that a person like me can’t really understand what’s going on? [Reversed]

External efficacy (waves 1 and 2)
(1 = Externally efficacious)
(4 items, Cronbach’s $\alpha = 0.61$)
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: People like me don’t have any say about what the government does? [Reversed]
• How much attention do you feel that governments in Canada pay to what people want?
Party identification (waves 1 and 2)
(1 = Feeling very close to a federal party)
(2 items Cronbach’s \( \alpha = 0.56 \))
Generally speaking, do you feel close to one of the Federal parties?
How close do you feel to that party?

Information (waves 1)
(1 = Very informed)
(6 items, Cronbach’s \( \alpha = 0.70 \))
• Do you happen to recall the name of the . . .
   . . . Quebec/BC Premier?
   . . . Republican candidate in the US presidential election?
   . . . Democratic candidate in the US presidential election?
   . . . President of France?
   . . . Minister of Finance in the federal government?
   . . . Governor General of Canada?
[Note: Information corresponds to the proportion of correct responses.]

Altruism (waves 1 and 2)
(1 = Altruist personality)
(6 items Cronbach’s \( \alpha = 0.59 \))
(3 items Cronbach’s \( \alpha = 0.28 \), wave 1 only)
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: One should always find ways to help others less fortunate than oneself?
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: People pay too much attention to the well-being of others? [Reversed]
• Money given to an anonymous individual (Dictator Game), between 0 and 100.

Shyness (waves 1 and 2)
(1 = Shy person)
(4 items Cronbach’s \( \alpha = 0.76 \))
(2 items Cronbach’s \( \alpha = 0.51 \), wave 1 only)
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: I am usually a person who initiates conversation? [Reversed]
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: I feel tense when I’m with people I don’t know well?
Personal efficacy (waves 1 and 2)
(1 = Efficacious person)
(4 items Cronbach’s $\alpha = 0.59$)
(2 items Cronbach’s $\alpha = 0.32$, wave 1 only)
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: I can do just about anything I really set my mind to?
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: I have little control over what happens to me? [Reversed]

Conflict avoidance (waves 1 and 2)
(1 = Avoids conflict)
(6 items Cronbach’s $\alpha = 0.68$)
(3 items Cronbach’s $\alpha = 0.44$, wave 1 only)
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: It is often better to give in on arguments rather than antagonizing people?
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: It is important to get one’s point across even if others don’t like it? [Reversed]
• Do you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with the following statement: Certain topics like religion and politics are better left undiscussed?

Age (wave 1)
(Numeric)
• In what year were you born?

Male (wave 1)
(1 = Male)
• Are you male or female?

Education (wave 1)
(1 = Highest level)
• What is the highest level of education that you have completed?

0 Some elementary school
0.125 Completed elementary school
0.25 Some secondary/high school
0.375 Completed secondary/high school
0.5 Some technical, community college, cegep
0.675 Completed technical, community college, cegep
0.8 Some university
0.925 Completed BA
1 Completed MA or PhD

Partner (waves 1 and 2)
(1 = Have a partner in both waves)
• Do you have a partner or a spouse?
[Note: The variable takes the value of 1 only if respondent indicates he/she is with a partner or spouse in both waves.]

Ownership (wave 1)
(1 = Own a house)
• Do you or someone else in your household own your home?

Religiosity (wave 1)
(1 = Religion is very important)
• How important is religion in our life?
[Note: Ranges from ‘Very Important’ to ‘Not Important at All’.]

Race (wave 1)
(1 = Non-white)
• What racial or ethnic group describes you best?

Immigrant (wave 1)
(1 = Immigrant)
• Were you born in Canada?

Income (wave 1)
• What is your household total annual income?
  0 Less than $20,000
  0.2 Between $20,000 and $40,000
  0.4 Between $40,000 and $60,000
  0.6 Between $60,000 and $80,000
  0.8 Between $80,000 and $100,000
  1 Over $100,000

Minority language (wave 1)
(1 = Speaks a different first language than the majority)
• What is the first language you learned and still understand?
### Appendix Table A. Mean of variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
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<tbody>
<tr>
<td><strong>Propensity to vote</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vote scale</td>
<td>0.86</td>
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<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Federal (intention)</td>
<td>0.90</td>
<td>0.23</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Provincial (intention)</td>
<td>0.87</td>
<td>0.24</td>
<td>0.00</td>
<td>1.00</td>
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<td>Municipal (intention)</td>
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<td>0.28</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Federal (voted)</td>
<td>0.88</td>
<td>0.32</td>
<td>0.00</td>
<td>1.00</td>
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<tr>
<td><strong>Political attitudes</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>0.60</td>
<td>0.23</td>
<td>0.00</td>
<td>1.00</td>
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<tr>
<td>Duty</td>
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Note: N = 1,838.
Notes

1. Sense of civic duty can also be conceived as a benefit in a broad rational choice model (Riker & Ordeshook 1968; Clarke et al. 2004: Chapter 7). The risk, however, is that about anything can count as a benefit, and so the theory becomes vacuous (Barry 1978: 16; Mueller 1989: 351; Blais 2000: 5).

2. All these questions, as most of the questions in the survey, were asked in both waves of the survey. Unless otherwise specified in the Appendix, we combine indicators in the two waves. To facilitate interpretation of the results, all variables (except Age) are scaled from 0 to 1.

3. These results appear robust. Non-linear estimations yielded lower $R^2$, and the interaction effect between duty and interest remained in all estimations. Very similar findings are obtained when the dependent variable is transformed into an ordinal variable with five categories.

4. See Blais and Achen (2009) for a more systematic analysis of this issue concerning the relationship between sense of civic duty and reported turnout; the study presents some evidence of rationalisation, but it also shows that rationalisation is limited and does not substantively affect the findings.

5. Political attitudes differ from personality traits in two respects. First, they refer to an organised set of views whereas personality refers to a disposition to react in certain ways. Second, they pertain to politics whereas personality applies to all realms of life.

6. These were the traits that, for the reasons outlined below, appeared potentially relevant when we designed the study. Given the early stage of research in this area, we do not claim that these are the only traits that matter, or that they are the most important.

7. Fowler (2006) finds that the effect is conditional on partisanship.

8. Because of space constraints in the survey questionnaire, each personality trait is measured by only two or three items. This means that traits are not measured as precisely as we would wish.

9. We have performed analyses using only the dictator game or only the agree/disagree statements. These produced similar, though weaker, results than those based on the combined scale.

10. Mutz (2002) examines different forms of political participation. We focus here on voting as such.

11. They do find a relationship between conflict avoidance and more confrontational forms of political participation.

12. The four personality traits are weakly correlated with each other. The strongest correlation (~0.30) is between shyness and efficacy.

13. In each of the regression presented in Table 2, the four personality variables are jointly significant. For each column, the $F$ tests for the joint significance of altruism, shyness, efficacy and conflict avoidance are: Interest $F(4, 1838) = 25.82, p = 0.000$; Duty $F(4, 1838) = 9.98, p = 0.000$; Vote scale $F(4, 1838) = 6.63, p = 0.000$; Voted (Wald test) $\chi^2(4) = 12.86, p = 0.012$. Furthermore, there is no reason to believe that panel attrition may bias the findings. The correlations between participation to the second wave and personality traits are 0.05 or weaker; the correlation with likelihood of voting in the federal election is 0.08.

14. This mediation hypothesis is similar to the model presented by Vecchione and Caprara (2009) in which personality traits affect political self-efficacy beliefs which in turn shape political participation.
15. Our findings are similar to those of Mondak et al. (2010: Table 3), who report that the initial correlation between openness to experience and turnout vanishes when political knowledge and political efficacy (mediating variables) are taking into account.

16. There is a significant positive relationship between conflict avoidance and reported voting (Table 3, column 3). Note, however, that the coefficient associated with conflict avoidance is not significant when we use the propensity to vote scale or when we do not include interest and duty. Note also that the positive relationship is inconsistent with the negative correlation observed by Mutz (2002).

References


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