

## Original Research Reports

# Neuroticism and State Differences in Partisanship in the USA: Emotional Stability, Ideological Orientation, and Republican Preference

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## Abstract

Relations between Neuroticism, Republican-Democrat preference, and conservative-liberal ideological orientation were examined with the states of the USA as units of analysis. State-aggregated Neuroticism scores were based on 1999-2005 responses of 619,397 residents to the 44-item Big Five Inventory. State Republican-Democrat preference was based on the 2002 occupancy of the U.S. Presidency, U.S. House, U.S. Senate, state House, state Senate, and state Governorship, as well as state-aggregated partisanship responses of 110,305 persons to 1998-2002 CBS/New York Times national polls. State conservative-liberal ideological orientation was based on 1998-2002 state-aggregated responses of 103,828 persons to CBS/New York Times national polls. Using correlation, partial correlation, and hierarchical multiple regression, it was determined that lower state resident Neuroticism is associated with Republican preference, and that both conservative-liberal ideological orientation and state resident Neuroticism account independently for variance in Republican-Democrat preference. These relations were found when 1998-2002 state socioeconomic status, white percent, and urban percent were statistically considered and controlled in partial correlation and hierarchical regression analysis. In contrast, corresponding analyses involving the other Big Five showed that only Openness and Conscientiousness showed any relation to partisanship, albeit infrequent and inconsistent. State resident Neuroticism is the primary state-level Big Five predictor of Republican/Democratic Party choice.

**Keywords:** Republican, neuroticism, political, ideology, partisanship, elections

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Differences between the 50 states of the USA in conservative-liberal ideological orientation are quite longstanding and stable (e.g., Erikson, Wright, & McIver, 2007; Rentfrow, Jost, Gosling, & Potter, 2009). Political pundits often attribute these state differences to local economic conditions, racial composition, ethnic cultural variation, historical settlement patterns, biased media coverage, the influence of leading political figures, political promotion, political advertising, and other situational variables (Jost, West, & Gosling, 2009; Rentfrow et al., 2009). However, there have been substantial developments in the understanding of the psychological foundations and dispositional roots of ideological preferences in recent years (e.g., Jost, Glaser, Kruglanski, & Sulloway, 2003; Mondak, 2010),

suggesting that personological factors among the electorate may be more important in the determination of such differences between the states in ideological orientation than commonly thought.

McCann (2014), building on this progress and working from the perspective of psychological geography (e.g., Allik & McCrae, 2004; Hofstede & McCrae, 2004; McCrae, 2001; McCrae & Terracciano, 2008; Rentfrow, 2010, 2014; Rentfrow, Gosling, & Potter, 2008; Schmitt, Allik, McCrae, & Benet-Martinez, 2007; Steel & Ones, 2002), focused on relations between the Big Five personality variables (e.g., Costa & McCrae, 1995; Goldberg, 1990; John & Srivastava, 1999) and ideological stances with the states of the USA as the units of analysis. What clearly emerged was that states with citizens lower on the Neuroticism dimension of the Big Five are higher on measures of conservatism. More specifically, McCann found that the responses of over 600,000 residents to the Big Five Inventory (John & Srivastava, 1999; Rentfrow et al., 2008)—aggregated to produce mean scores for each state on Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism—were related in a fairly consistent manner to state measures of political, social, and economic conservatism as well as a simple additive composite of the three. For the 47 states excluding Alaska, Hawaii, and Nevada, which were dropped because of missing or faulty data, partial correlations between Neuroticism and each of the four conservatism measures ranged from  $-.54$  to  $-.63$  with state socioeconomic status (SES), white population percent, and urban population percent controlled. In each of four corresponding hierarchical multiple regression equations with the same demographic variables taken into consideration, the percentage of variance in conservatism accounted for by Neuroticism ranged from 15.8% to 31.3%. Neuroticism also had the capacity to substantially diminish Openness to Experience and eliminate Conscientiousness as predictors of conservatism in the regression approach.

The “Big Five” or “Five-Factor Model” refers to the most widely accepted approach to personality in the last few decades. It involves five core factors: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. For example, among several other defining characteristics, those high on Openness exhibit greater intellectual curiosity and willingness to experiment, those high on Conscientiousness manifest higher deliberation and self-discipline, those high on Extraversion demonstrate more positive emotions and gregariousness, those high on Agreeableness display higher trust and compliance, and those high on Neuroticism show higher anxiety and vulnerability (Costa & McCrae, 1995).<sup>i</sup>

In another line of research, Wright and Birkhead (2012) have demonstrated that there has been a strong general tendency for ideological and partisan identifications in the USA to become more aligned over the past 30 years or so. Such a strong convergence also is evident at the state level. Furthermore, Wright and Birkhead provide convincing evidence that the increasingly strong relation between ideology and partisanship is occurring because Republican-Democrat partisanship is being adjusted to correspond more closely to relatively stable conservative-liberal ideological orientations.

Therefore, if the resident levels of Neuroticism in a state are predictive of the degree of conservative-liberal ideological orientation in a state (McCann, 2014) and Republican-Democratic leaning in a state is closely aligned with conservative-liberal ideological orientation in a state (Wright & Birkhead, 2012), then it is logical to hypothesize that such an important aspect of personality and psychological functioning as Neuroticism might also be related to state differences in Republican-Democrat partisan preferences. The present work primarily was conducted to determine the extent to which differences in state-level Republican-Democrat partisanship, as expressed through the election of Republicans and Democrats to national and state positions, and as expressed in responses to national polls, can be accounted for by the average level of Big Five Neuroticism of the residents in each state.

A secondary aim was to determine whether and to what extent conservative-liberal ideological orientation and resident Neuroticism contribute independently to variance in Republican-Democrat preferences in such a state-level analysis. In addition, as in the earlier McCann research, the potential roles of the other four Big Five personality variables in regard to state Republican-Democratic endorsement also were considered in the present work.

The only past study of Big Five personality variables and Republican-Democrat voting preferences with states of the USA as the units of analysis was conducted by [Rentfrow et al. \(2009\)](#). These authors analyzed relations between the [Rentfrow et al. \(2008\)](#) state Big Five scores and state percentages voting Republican and Democrat in the 1996, 2000, and 2004 presidential elections for the 50 states of the USA and Washington, DC. According to the Rentfrow et al. report, simultaneous regression without statistical control for demographic variables showed that Neuroticism related positively to voting Democrat and negatively to voting Republican in the election of 2004. Openness and Extraversion related positively to voting Democrat and negatively to voting Republican, and Conscientiousness related negatively to voting Democrat and positively to voting Republican, in all three elections. Agreeableness showed no relations.<sup>ii</sup>

A basic tenet of the “psychological geography” theory of [Rentfrow et al. \(2008\)](#) is that the aggregate position of the residents of a geographical area on a dispositional dimension is linked to the pervasiveness in that area of the tendencies associated with that dispositional dimension. In other words, aggregate relations may be based on parallel relations at the individual level. Therefore, in the present context, state-level tendencies to endorse one party or the other may be rooted in individual-level tendencies to favor one party over another.

According to [Rentfrow et al. \(2008\)](#), such a linkage between aggregate and individual level relations can be fostered and maintained through five different pathways. In Path A, if those in a geographic area are disproportionately higher or lower on a trait, then there should be corresponding levels of psychological and behavioral manifestations of that trait in that area. In Path B, if psychological and behavioral manifestations of a trait are prominent in an area, then such proclivities should eventually lead to the formation of institutions that service and sustain such proclivities. In Path C, such dominant psychological and behavioral manifestations can form a psychosocial climate in an area that socially influences even others of contrary disposition to conform and adhere to the norms of that area. In Path D, institutional and social structure variables in an area can influence psychological and behavioral tendencies by enhancing or limiting personal opportunities for those with particular dispositional attributes. In Path E, the social norms of an area influence trait prevalence because established socialization processes facilitate the acquisition of relevant dispositional features, because an area attracts people with traits similar to the existing inhabitants of that area, and because people with traits dissimilar to those of the present inhabitants may choose to leave that area.

It also is important to point out that other researchers have noted that the roots of the conservative-liberal ideological dimension and political choices ultimately are psychological (e.g., [Jost, Glaser, Kruglanski, & Sulloway, 2003](#); [McCrae, 1996](#); [Mondak, 2010](#)). For example, Mondak has stated that “the reason people are not all on the same political page is ... because ... some people are psychologically predisposed to be liberals and others to be conservatives” (p. 131). To McCrae, “there are recognizable patterns that endure beneath shifting political fashions” (p. 325) that we refer to most noticeably as conservatism and liberalism and “the basis of these two perspectives is ultimately not political, sociological, or economic but psychological” (p. 325). To Jost et al., “political attitudes and beliefs possess a strong motivational basis” (p. 369) and “conservative ideologies, like virtually all other belief systems, are adopted in part because they satisfy various psychological needs” (p. 369).

Rentfrow et al. (2008) were well aware of the “ecological fallacy” (Robinson, 1950) and the “compositional fallacy” (Pettigrew, 1997) which point to the possible pitfalls of generalizing from one analytical level to another, from the aggregate to the individual level in the first instance and from the individual to the aggregate level in the second. Rentfrow et al. accepted that similar relations at the aggregate and the individual level of analysis both must eventually be demonstrated empirically rather than merely assumed, and that mechanisms linking the relations at the aggregate level to relations at the individual level ultimately must be articulated and empirically supported, if we are to wholly accept aggregate-level relations as stemming from individual-level relations. However, psychological geography is still in its infancy. Therefore, simply determining what relations indeed exist at the individual and aggregate levels in particular contexts is very much in order. Explanatory mechanisms suitable to all are desirable but somewhat improbable until much more effort is incurred in the slow process of building sounder knowledge bases in particular contexts in regard to the existence and nature of relations at both the individual and the aggregate level.

On the other hand, it also should be noted that there is merit in the fact that the nature of aggregation itself can increase the chances of finding significant relations between variables (e.g., Erikson, Wright, & McIver, 1993; Rushton, Brainerd, & Pressley, 1983; Steel & Ones, 2002). Correlations between variables based on aggregation are larger than correlations based on original cases because measurement errors tend to cancel each other out when items are aggregated. Such aggregate-level relations can perform the function of signaling the need for closer and more aggressive examination to determine whether any further evidence can be mustered for parallel individual-level relations.

### Why Should Lower Neuroticism Be Associated With Republican Endorsement?

At the individual level of analysis, one may speculatively ask what it might be that could attract less neurotic persons to the Republicans and more neurotic persons to the Democrats? Those higher on the Neuroticism dimension have trouble dealing with stressful situations and are prone to anxiety, worry, and elevated emotionality (e.g., John & Srivastava, 1999). Given these characteristics, Gerber, Huber, Doherty, Dowling, and Shang (2010) speculated that those who are more neurotic are likely to be attracted to a liberal ideological orientation and identify with liberals rather than conservatives because it is “liberal economic policies that create ‘safety nets’ and reduce exposure to market risks” (p. 116). In contrast, those who are lower on the Neuroticism dimension tend to be emotionally stable, are less prone to anxiety and worry, deal more effectively with stress in their lives, are less impulsive, and lead a calmer, more secure, and contented existence (e.g., Mondak & Halperin, 2008). Those lower on Neuroticism, and hence more emotionally stable, have a greater “capability of controlling irritation, discontent, and anger” (Caprara, Barbaranelli, & Zimbardo, 1999, p. 183). Therefore, perhaps it is not surprising that they are more supportive of the status quo (Peterson & Maiden, 1992-93) and are resistant to the potential upheaval inherent in societal change. As Mondak (2010) has said, “liberalism corresponds with a willingness to see government tackle new and varied problems, while conservatism implies a more cautious approach in which presumption favors the status quo” (p. 127). Generally, it appears that those who are more neurotic and less stable may find greater compatibility with key aspects of liberalism while those who are less neurotic and more stable are better suited to the principles of conservatism.

Furthermore, liberal values currently are much more likely to be effectively expressed through the oratory and actions of the Democratic Party and conservative values through the oratory and actions of the Republican Party. Consequently, firm, refined, and appropriate ideological knowledge and commitment may not be necessary for

citizens to be differentially influenced by such oratory and actions according to their standing on the Neuroticism-Stability personality continuum. For example, more neurotic individuals, even if not firmly committed to liberal ideology, may be “more inclined to support parties that offer shelter against material or cultural challenges” (Schoen & Schumann, 2007, p. 492) and the higher emotionality of those who are more neurotic may lead them “to identify with those who seek redress through social interventions” (Gerber et al., 2010, p. 116), which, in contemporary politics in the USA, generally is the Democratic Party.

Given the association between lower Neuroticism and higher conservatism found in several studies in the USA at both the individual and the aggregate level of analysis (e.g., McCann, 2014; Mondak, 2010), and the contemporary association between conservative-liberal ideology and Republican-Democrat partisan identification found at both the individual and aggregate levels in the USA (e.g., Jost, 2006; Wright & Birkhead, 2012), it seems clear that both the potential indirect influence of Neuroticism through ideological orientation on partisanship and the direct influence of Neuroticism on partisanship should be considered. In other words, what promotes the connection between lower Neuroticism and conservatism, and hence partisanship? What fosters the direct association between lower Neuroticism and Republican endorsement? Both related questions and their answers are of interest in the current context.

Regarding the indirect route, there is some support for a link between Neuroticism and ideological orientation in the USA with individuals as the units of analysis. Studies have produced results showing that lower Neuroticism may be associated with higher conservatism (Carney, Jost, Gosling, & Potter, 2008; Gerber et al., 2010; Gosling, Rentfrow, & Swann, 2003; Mondak & Halperin, 2008). Studies elsewhere in the world also suggest that lower Neuroticism may be associated with higher conservatism (e.g., Riemann, Grubich, Hempel, Mergl, & Richter, 1993; Schoen & Schumann, 2007). However, studies in the USA also have produced a positive correlation between Neuroticism and conservatism (Cooper, Golden, & Socha, 2013; Jost et al., 2009) and others have shown no correlation (Alford & Hibbing, 2007; Butler, 2000; Hirsh, DeYoung, Xu, & Peterson, 2010; Mehrabian, 1996; Peterson & Maiden, 1992-93). As well, Mondak (2010) found no relation in a data set not previously analyzed in Mondak and Halperin.

Regarding the direct route, in previous research in the USA with individuals as the units of analysis, lower Neuroticism has been associated with Republican endorsement in the research of Peterson and Maiden (1992-93), Barbaranelli, Caprara, Vecchione, and Fraley (2007), Mondak and Halperin (2008), and Gerber, Huber, Doherty, and Dowling (2012). However, Jost et al. (2009) and Cooper et al. (2013) found no association. As well, Mondak (2010) found no relation in the data set not previously appearing in Mondak and Halperin.

## Potential Relations of Other Big Five Variables to Republican Endorsement

Of the four other Big Five variables, previous individual-level research with residents of the USA shows that lower Openness is most consistently associated with higher conservatism. Openness was found to be negatively related to conservative ideology in the individual-level work of Alford and Hibbing (2007), Butler (2000), Carney et al. (2008), Cooper, Golden, and Socha (2013), Gerber et al. (2010), Gosling et al. (2003), Hirsh, DeYoung, Xu, and Peterson (2010), Jost et al. (2009), Mehrabian (1996), Mondak and Halperin (2008), Peterson and Maiden (1992-93), Stenner (2005), and Trapnell (1994). However, Openness was found to be unrelated to economic conservatism in the Carney et al. research. Seven individual-level studies have found that lower Openness is associated with Republican choice (Barbaranelli et al., 2007; Cooper et al., 2013; Gerber et al., 2012; Hirsh et al., 2010; Jost et al., 2009; Mondak & Halperin, 2008; Peterson & Maiden, 1992-93).



Higher Conscientiousness too has been found to be associated fairly consistently with conservative ideology. Support for this relation was found in the individual-level research of Carney et al. (2008), Cooper et al. (2013), Gerber et al. (2010), Gosling et al. (2003), Hirsh et al. (2010), Jost et al. (2009), Mehrabian (1996), Mondak (2010), Mondak and Halperin (2008), and Stenner (2005). However, a lack of relation also has been reported by Alford and Hibbing (2007) and Butler (2000), as well as Carney et al. (2008) specifically in regard to economic conservatism. Five studies also have reported that higher Conscientiousness is associated with Republican choice (Barbaranelli et al., 2007; Gerber et al., 2012; Hirsh et al., 2010; Jost et al., 2009; Mondak & Halperin, 2008).

Higher Extraversion sporadically has been found to be associated with higher conservatism (Carney et al., 2008; Gerber et al., 2010; Peterson & Maiden, 1992-93). However, researchers also have reported a negative relation (Cooper et al., 2013) and no relation (Alford & Hibbing, 2007; Butler, 2000; Hirsh et al., 2010; Jost et al., 2009; Mehrabian, 1996; Mondak, 2010; Mondak & Halperin, 2008). Carney et al. (2008) also reported no relation for economic conservatism. No significant relation between Extraversion and Republican choice has been reported (Cooper et al., 2013; Gerber et al., 2012; Hirsh et al., 2010; Mondak, 2010; Mondak & Halperin, 2008).

Individual-level results have been quite mixed in regard to the relation between Agreeableness and conservatism. Some evidence has been reported for a negative relation (Alford & Hibbing, 2007; Butler, 2000; Gerber et al., 2010; Hirsh et al., 2010; Mondak, 2010; Mondak & Halperin, 2008), a positive relation (Carney et al., 2008; Gerber et al., 2010), and no relation (Carney et al., 2008; Cooper et al., 2013; Gerber et al., 2010; Jost et al., 2009; Mehrabian, 1996; Mondak & Halperin, 2008). Two studies have found negative relations between Agreeableness and Republican choice (Hirsh et al., 2010; Mondak & Halperin, 2008) and two have reported no relation (Gerber et al., 2012; Jost et al., 2009).

## The Present Study

The primary focus of the research reported here is on the relation of Neuroticism to Republican choices in elections and in national polls with states as the units of analysis. The research was initiated to determine the relation of Neuroticism to Republican choice in elections for President, U.S. Senate, U.S. House, state Senate, state House, state Governor, and a composite of these six election categories, as well as to Republican choice in national partisanship polls.<sup>iii</sup> It was hypothesized that lower Neuroticism would be associated with greater Republican choice for each of the eight partisanship criteria. The hypothesis was based largely on the robust relations between Neuroticism and conservatism found in the state-level analysis by McCann (2014) and the contemporary close correspondence between conservative-liberal ideological orientation and Republican-Democrat partisanship demonstrated by Wright and Birkhead (2012). It also was partially based on the relation of Neuroticism and Republican-Democrat voting in presidential elections inherent in the state-level analysis reported by Jost et al. (2009; see Note ii), the individual-level relations between Neuroticism and partisanship in the USA reported by Peterson and Maiden (1992-93), Barbaranelli et al. (2007), Mondak and Halperin (2008), and Gerber et al. (2012), and on the logical arguments presented earlier as to why Neuroticism should be related to party choices. Consideration also was given to the other four Big Five personality variables as predictors of partisanship in corresponding supplementary analyses conducted in an exploratory manner. In addition, if Neuroticism were to be found related to partisan preference, then hierarchical multiple regression analyses were planned to determine whether Neuroticism and ideological orientation make independent or overlapping contributions as predictors of Republican-Democrat preferences.

## Method

### Measures

#### Neuroticism and the Other Big Five Personality Variables

From the responses of 619,397 residents to the 44-item Big Five Inventory ([John & Srivastava, 1999](#)) in an internet survey conducted between December of 1999 and January of 2005, [Rentfrow et al. \(2008\)](#) created state-aggregated z scores for Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Cronbach alphas for the Big Five averaged .89 at the state level and .81 at the individual level. The Big Five factor structure at the state level closely mirrored that usually reported for the individual level, with the factor congruence coefficient for Neuroticism being .95. Rentfrow et al. also reported that the sample was quite representative based on comparisons to census data. State-level Neuroticism score estimates from three random subsamples showed a high average inter-subsample correlation of .85. A test-retest correlation of .86 based on two temporal subsamples also demonstrated high convergence for Neuroticism.

#### Partisanship: MPI 2002

The 2002 values on the MPI developed by [Ceaser and Saldin \(2005\)](#) served as indicators of state partisanship. The MPI is a composite based on state Republican and Democratic outcomes in six weighted categories: President (25%), U.S. House (12.5%), U.S. Senate (12.5%), state House (12.5%), state Senate (12.5%), and Governor (25%). Ceaser and Saldin displayed the 2002 total scores and the sub-category scores on the MPI as percentages with higher scores indicating greater Republican support. All seven 2002 MPI scores were used in the present study.

#### Partisanship: CBS/NYT 1998-2002

State partisanship values also were determined from the state-aggregated responses of 110,305 persons to CBS/NYT national telephone polls conducted from 1998 to 2002 as tabled by [Wright \(2012\)](#). Alaska and Hawaii were excluded from Wright's tabulations. [Erikson et al. \(1993\)](#) present further details regarding the CBS/NYT data collection methodology. Pollsters asked the following question (Erikson et al., p. 14): "Generally speaking, do you consider yourself a Republican, a Democrat, an Independent, or what?" For the annual state values presented by Wright, Cronbach's alpha was .94 for Republican Party percentages and .94 for Democratic Party percentages. The variable produced for the present study was the mean percent of Republican supporters minus the mean percent of Democratic supporters over the years from 1998 to 2002 in each of the 48 included states.

#### Ideology: CBS/NYT 1998-2002

State ideological identification values were determined from the state-aggregated responses of 103,828 persons to CBS/NYT national telephone polls conducted from 1998 to 2002. [Wright \(2012\)](#) tabled the state values and [Erikson et al. \(1993\)](#) provided further information regarding the data collection methodology. Data were not tabulated for Alaska and Hawaii. Pollsters asked the following question (Erikson et al., p. 14): "How would you describe your views on most political matters? Generally, do you think of yourself as liberal, moderate, or conservative?" For the annual state values for 1998 through 2002 presented by Wright, the Cronbach alpha was .92 for conservative percentages and .85 for liberal percentages. The variable created for the present study was the mean percentage of conservatives minus the mean percentage of liberals over the years from 1998 to 2002 in each state.

### SES Composite 1998-2002

For each state in 1998 and in 2002, the percent of the population 25 years of age and over with at least high school graduation and the percent of the population 25 years of age and over with at least an undergraduate degree were taken from the Statistical Abstract of the United States (U.S. Census Bureau, 2003). The same federal source (U.S. Census Bureau, 2000, 2003) provided the personal income per capita for 1998 and 2002 for each state in constant 1996 dollars. As well, the source provided the percent of individuals living below the poverty line in each state in 1998 and 1999 (U.S. Census Bureau, 2001) and the average percent for the years 2000 through 2002 (U.S. Census Bureau, 2004-2005). The source also furnished state unemployment rates for 1998 and 2002 (U.S. Census Bureau, 1999, 2003).

For the 50 states, the correlations between the 1998 and 2002 values were .89 for high school education, .92 for undergraduate education, .98 for personal income, and .51 for unemployment rate. For the three poverty line variables, the correlations were .89 between 1998 and 1999, .88 between 1998 and 2000 to 2002, and .86 between 1999 and 2000 to 2002. Given the generally high degree of correlation between the years, mean scores were calculated for each state for the period 1998 to 2002 from the available data for each of the five variables and the resulting mean scores were converted to z scores. Subsequently, with the sign reversed for poverty line and unemployment, the five scores were summed for each state and divided by 5 to form an SES score for each state. The SES composite variable had a Cronbach alpha of .82.

### White Percent of the Population 1998-2002

The Statistical Abstract of the United States provided total and white population estimates for each state for 1998 and 2002 (U.S. Census Bureau, 1999, 2003). From these figures, the white population percent was calculated for each state for each year. The white percentages for 1998 and 2002 were almost perfectly correlated,  $r(48) = .997$ ,  $p < .001$ . Therefore, a white percent composite was formed from the average of the 1998 and 2002 percentages.

### Urban Percent of the Population 1998-2002

The urban percent for each state was based on the data for 2000 (U.S. Census Bureau, 2007). Only data from the 2000 census were available for the 1998 to 2002 period.

## Results

A screening for outliers in the distributions of each of the 13 variables to be included in the analyses revealed that only one variable had one state with a score beyond -3 or +3 standard deviations. To preserve degrees of freedom, the white percent outlier for Hawaii was adjusted from 29.65 to fall at the three standard deviation level of 47.42 to minimize any potential undue influence. Table 1 shows the resulting means, standard deviations, minimums, and maximums for the 17 state variables.

Table 2 displays the Pearson correlations between the 17 state variables with two-tailed significance tests. There clearly was a general tendency for lower Neuroticism to be associated with Republican partisanship as assessed by the 2002 MPI total and subcategory electoral outcomes, as well as the CBS/NYT 1998-2002 partisanship polls. It also is evident that the 2002 MPI subcategory scores generally correlated positively with each other.



Table 1

*Descriptive Statistics for the 17 State Variables (N = 50)*

Variable	<i>M</i>	<i>SD</i>	Minimum	Maximum
Neuroticism	0.01	1.01	-2.52	2.36
Total on 2002 MPI	51.70	8.30	31.50	68.50
President subscale on 2002 MPI	52.71	9.10	34.20	71.70
U.S. House subscale on 2002 MPI	52.29	13.34	13.10	88.60
U.S. Senate subscale on 2002 MPI	53.01	14.76	21.80	85.80
State House subscale on 2002 MPI ( <i>n</i> = 49)	50.49	15.60	14.50	77.10
State Senate subscale on 2002 MPI ( <i>n</i> = 49)	50.56	16.13	15.00	80.00
Governor subscale on 2002 MPI	51.83	8.33	26.80	75.60
Partisanship CBS/NYT 1998-2002 ( <i>n</i> = 48)	2.45	11.54	-23.40	25.90
Ideology CBS/NYT 1998-2002 ( <i>n</i> = 48)	12.68	9.16	-9.44	27.84
SES 1998-2002	0.00	0.76	-1.73	1.44
White percent 1998-2002	84.09	10.66	47.42	97.73
Urban percent 1998-2002	71.69	14.90	38.20	94.40
Openness to experience	-0.06	0.87	-2.75	1.32
Conscientiousness	0.01	1.01	-3.00	2.40
Extraversion	-0.03	0.98	-1.99	3.08
Agreeableness	0.07	0.84	-2.85	1.60

However, the Governor sub-scores showed no significant correlations with the other sub-scores and only a modest positive correlation to the total 2002 MPI score. Nevertheless, the CBS/NYT 1998-2002 partisanship scores did correlate significantly with each of the seven 2002 MPI scores. There was little relation between the eight partisanship indicators and the three demographic variables. Only five of the 24 correlations were statistically significant but each demographic variable correlated significantly with at least one of the partisanship variables. Of the other Big Five variables, only Openness showed any significant relation to partisanship, correlating -.45 with President MPI and -.35 with U.S. House MPI. However, ideological orientation correlated significantly with Openness (-.48), Conscientiousness (.45), Extraversion (.34), and Agreeableness (.38).

To test the hypothesis that lower Neuroticism is associated with Republican partisanship, the relation between Neuroticism and each of the eight partisanship variables was assessed with Pearson correlation and partial correlation controlling for SES, white percent, and urban percent. Table 3 shows the results. All significance tests were one-tailed. Each of the eight Republican partisanship variables provided support for the hypothesis with either the Pearson or partial correlation, or both. All of the Pearson and partial correlations between Neuroticism and partisanship scores were in the negative direction and 14 of the 16 coefficients were significant. The two exceptions which involved the U.S. Senate and Governor MPI sub-scores very closely approached significance, being at the .064 and .060 significance levels, respectively.

Table 2

Correlations Between the 17 State Variables ( $N = 50$ )

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
1. Neuroticism																
2. Total 2002 MPI	-.51***															
3. President MPI	-.46***	.82***														
4. U.S. House MPI	-.34*	.73***	.65***													
5. U.S. Senate MPI	.22	.69***	.58***	.56***												
6. State House MPI ( $n = 49$ )	-.57***	.84***	.61***	.62***	.47***											
7. State Senate MPI ( $n = 49$ )	-.40**	.84***	.60***	.59***	.46***	.81***										
8. Governor MPI	-.26	.32*	.18	.18	-.02	.10	.15									
9. Partisanship CBS/NTYT ( $n = 48$ )	-.62***	.85***	.77***	.53***	.62***	.75***	.77*	.28*								
10. Ideology CBS/NTYT ( $n = 48$ )	-.22	.59***	.80***	.53***	.41**	.24	.37*	.21	.45***							
11. SES	-.26	.01	-.28*	-.01	-.08	.26	.17	.12	.10	-.51***						
12. White percent	-.13	.25	.20	-.02	.16	.37**	.42**	-.02	.36*	-.13	.24					
13. Urban percent	-.17	-.20	-.42**	-.16	-.21	-.13	-.07	.17	-.12	-.37**	.35*	-.24				
14. Openness to experience	.13	-.26	-.45***	-.35*	-.20	-.26	-.11	.15	-.23	-.48***	.12	.04	.40**			
15. Conscientiousness	-.27	.17	.27	.19	.13	.14	.25	-.08	.26	.45***	-.27	.05	.01	.06		
16. Extraversion	-.15	.10	.17	.12	-.05	.17	.20	.04	.17	.34*	-.05	.13	-.09	-.50***	.43**	
17. Agreeableness	-.15	-.03	.11	.01	-.11	.10	.07	-.12	.13	.38**	-.11	.02	-.15	-.18	.66***	.57***

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ , two-tailed tests.

Table 3

Testing the Hypothesis: Pearson Correlations and Partial Correlations Between Neuroticism and State Partisanship With State SES, White Percent, and Urban Percent Controlled ( $N = 50$ )

Partisanship variable	Pearson	Partial
Total score on the 2002 MPI	-.51***	-.55***
President subscale score on the 2002 MPI	-.46***	-.65***
U.S. House subscale score on the 2002 MPI	-.34**	-.38**
U.S. Senate subscale score on the 2002 MPI	-.22	-.26*
State House subscale score on the 2002 MPI ( $n = 49$ )	-.57***	-.57***
State Senate subscale score on the 2002 MPI ( $n = 49$ )	-.40**	-.38**
Governor subscale score on the 2002 MPI	-.26*	-.23
Partisanship CBS/NTYT 1998-2002 ( $n = 48$ )	-.62***	-.65***

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ , one-tailed tests.

## Supplementary Analyses to Determine Relations of Partisanship to the Other Big Five

The focus of the present research is squarely on the relation of Neuroticism to partisanship but the relations of the other four Big Five personality variables to partisanship also were analyzed. No hypotheses were put forward in regard to Openness, Conscientiousness, Extraversion, and Agreeableness. Pearson and partial correlations were computed with two-tailed significance tests. Partial correlations with the three demographic variables controlled showed only minor differences from the pattern evident among the previously reported Pearson correlations (see Table 4).

Table 4

*Pearson Correlations and Partial Correlations between State Partisanship and Openness, Conscientiousness, Extraversion, and Agreeableness with (1) State SES, White Percent, and Urban Percent Controlled and (2) with State SES, White Percent, Urban Percent, and Neuroticism Controlled (N = 50)*

Partisanship variable	Big Five variable	Pearson	Partial (1)	Partial (2)
Total score on the 2002 MPI	Openness	-.26	-.24	-.14
	Conscientiousness	.17	.19	-.01
	Extraversion	.10	.06	-.03
	Agreeableness	-.01	-.04	-.18
President subscale score on the 2002 MPI	Openness	-.45***	-.39**	-.32*
	Conscientiousness	.27	.26	.04
	Extraversion	.17	.13	.03
	Agreeableness	.11	.04	-.12
U.S. House subscale score on the 2002 MPI	Openness	-.35*	-.32*	-.25
	Conscientiousness	.19	.23	.11
	Extraversion	.12	.12	.06
	Agreeableness	.01	-.02	-.10
U.S. Senate subscale score on the 2002 MPI	Openness	-.20	-.16	-.10
	Conscientiousness	.13	.12	.03
	Extraversion	-.05	-.09	-.14
	Agreeableness	-.11	-.15	-.21
State House subscale score on the 2002 MPI (n = 49)	Openness	-.26	-.30*	-.20
	Conscientiousness	.14	.22	.03
	Extraversion	.17	.15	.08
	Agreeableness	.10	.11	-.00
State Senate subscale score on the 2002 MPI (n = 49)	Openness	-.11	-.17	-.08
	Conscientiousness	.25	.29*	.19
	Extraversion	.20	.17	.12
	Agreeableness	.07	.08	.01
Governor subscale score on the 2002 MPI	Openness	.15	.09	.16
	Conscientiousness	-.08	-.06	-.16
	Extraversion	.04	.06	.02
	Agreeableness	-.12	-.09	-.14
Partisanship CBS/NYT 1998-2002 (n = 48)	Openness	-.23	-.27	-.15
	Conscientiousness	.26	.29	.09
	Extraversion	.17	.13	.03
	Agreeableness	.13	.13	.00

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ , two-tailed tests.

Openness was significantly correlated with the MPI President subscale (-.39), the MPI U.S. House subscale (-.32), and the MPI State House subscale (-.30). Conscientiousness was significantly correlated only with the MPI State Senate subscale (.29). However, differences in the pattern were evident when partial correlations were conducted with Neuroticism *and* the three demographic variables controlled. Now, Openness was significantly correlated only with the MPI President subscale (-.32) and Extraversion, Conscientiousness, and Agreeableness were not significantly correlated with any of the eight partisanship measures.

In contrast, it also is noteworthy that in further supplementary analyses, when partial correlations were computed with Openness, Conscientiousness, and the three demographic variables controlled, the correlations between Neuroticism and the eight partisanship criteria were not appreciably altered. Neuroticism still significantly correlated with the total MPI (-.49,  $p < .001$ ), the MPI President subscale (-.58,  $p < .001$ ), the MPI U.S. House subscale (-.27,  $p < .05$ ), the MPI State House subscale (-.50,  $p < .001$ ), the MPI State Senate subscale (-.28,  $p < .05$ ), and the CBS/NYT 1998-2002 partisanship scores (-.57,  $p < .001$ ). Also, the partial correlation for the MPI state Governor subscale increased from a non-significant -.23 ( $p = .060$ ) to a significant -.31 ( $p < .05$ ) and the partial correlation for the MPI U.S. Senate subscale dropped slightly from a significant -.26 ( $p < .05$ ) to a non-significant -.21 ( $p = .089$ ). To maintain consistency, all of these were one-tailed significance tests.

## Tests of Independence of Neuroticism and Ideology as Predictors of Partisanship

Analyses to test the independence of Neuroticism and ideological orientation as predictors of partisanship were based on 48 rather than 50 states, given the major role of the CBS/NYT ideology scores for 1998 to 2002 and the fact that survey data were not available for Alaska and Hawaii. Table 5 displays the Pearson and partial correlations between the CBS/NYT ideology variable and the other variables, excluding Openness, Conscientiousness, Extraversion, and Agreeableness.

Table 5

*Pearson Correlations between CBS/NYT 1998-2002 State Ideology and 12 other Variables, and Corresponding Partial Correlations with State SES, White Percent, and Urban Percent Controlled (N = 48)*

Variable	Pearson	Partial
Neuroticism	-.22	-.48***
Total score on the 2002 MPI	.59***	.72***
President subscale score on the 2002 MPI	.80***	.82***
U.S. House subscale score on the 2002 MPI	.53***	.58***
U.S. Senate subscale score on the 2002 MPI	.41**	.42**
State House subscale score on the 2002 MPI ( $n = 47$ )	.24	.46**
State Senate subscale score on the 2002 MPI ( $n = 47$ )	.37*	.61***
Governor subscale score on the 2002 MPI	.21	.37*
Partisanship CBS/NYT 1998-2002	.45***	.64***
SES 1998-2002	-.51***	
White percent 1998-2002	-.13	
Urban percent 1998-2002	-.37**	

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ , one-tailed tests.

State SES, white percent, and urban percent served as demographic controls in the computation of the partial correlations. With state demographic factors taken into account, the CBS/NYT state ideology variable was significantly correlated with Neuroticism (-.48) and with each of the eight partisanship variables, with correlations ranging

from .37 to .82. Conservative ideology was associated with lower Neuroticism and Republican endorsement. State ideology also significantly correlated with SES (-.51) and urban percent (-.37). As well, lower SES and less urbanization each were associated with greater conservatism.

Table 6

*Results of Hierarchical Multiple Regression Equations with Partisanship as the Criterion Formed by Entering State SES, White Percent, and Urban Percent Stepwise Followed by Neuroticism and Ideology in Alternate Order Using 1998-2002 State Ideology Values (N = 48)*

Partisanship variable	Order	Predictors	df	R <sup>2</sup> change	F
Total MPI 2002	1	Neuroticism	1, 46	.289	18.67***
		Ideology	1, 45	.235	22.25***
	2	Ideology	1, 46	.351	24.93***
		Neuroticism	1, 45	.173	16.32***
President MPI 2002	1	Urban percent	1, 46	.160	8.75**
		Neuroticism	1, 45	.297	24.67***
	2	Ideology	1, 44	.311	59.21***
		Neuroticism	1, 45	.491	63.22***
U.S. House MPI 2002	1	Ideology	1, 44	.118	22.44***
		Neuroticism	1, 45	.115	5.99*
	2	Ideology	1, 45	.213	14.31***
		Neuroticism	1, 46	.277	17.61***
U.S. Senate MPI 2002	1	Ideology	1, 45	.052	3.47
		Neuroticism	1, 46	.051	2.46
	2	Ideology	1, 45	.135	7.46**
		Neuroticism	1, 46	.167	9.21**
State House MPI 2002 (n = 47)	1	White percent	1, 45	.019	1.04
		Neuroticism	1, 44	.128	6.61*
	2	Ideology	1, 43	.276	20.38***
		Neuroticism	1, 44	.030	2.31
State Senate MPI 2002 (n = 47)	1	Ideology	1, 44	.091	5.10*
		Neuroticism	1, 43	.216	16.42***
	2	Ideology	1, 44	.126	6.46*
		Neuroticism	1, 43	.141	8.43**
Governor MPI 2002	1	Ideology	1, 43	.117	8.17**
		Neuroticism	1, 44	.181	11.50***
	2	Ideology	1, 43	.077	5.35*
		Neuroticism	1, 46	.061	3.00
CBS/NYT 1998-2002	1	Ideology	1, 45	.026	0.26
		Neuroticism	1, 46	.045	2.18
	2	Ideology	1, 45	.042	2.01
		Neuroticism	1, 44	.128	6.78*
CBS/NYT 1998-2002	1	White percent	1, 46	.128	6.78*
		Neuroticism	1, 45	.299	23.56***
	2	Ideology	1, 44	.139	14.11***
		Neuroticism	1, 45	.255	18.64***
CBS/NYT 1998-2002	1	White percent	1, 46	.128	6.78*
		Neuroticism	1, 45	.299	23.56***
	2	Ideology	1, 44	.139	14.11***
		Neuroticism	1, 45	.255	18.64***
CBS/NYT 1998-2002	1	White percent	1, 46	.128	6.78*
		Neuroticism	1, 45	.299	23.56***
	2	Ideology	1, 44	.139	14.11***
		Neuroticism	1, 45	.255	18.64***

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



To determine whether state resident Neuroticism and ideology accounted independently for variance in partisanship, and to gauge the amount of variance each could account for when the other is controlled, two hierarchical multiple regression equations were computed for each of the eight partisanship criteria. In each equation, the three demographic variables were entered in stepwise mode first to potentially reduce predictive redundancy and preserve degrees of freedom. Then in one of the two equations for each criterion, Neuroticism was entered second and ideology third. In the second of the two equations for each criterion, ideology was entered second and Neuroticism third. The results are presented in [Table 6](#).

Of the three demographic variables, state urban percent accounted for a significant percentage of the variance in the President MPI 2002 partisanship criterion, while state white percent accounted for a significant percentage of the variance in the State House MPI 2002, State Senate MPI 2002, and CBS/NYT 1998-2002 partisanship criteria. Less urbanized states tended to vote Republican in the presidential race. Residents in states with a higher white percentage tended to vote Republican in state Senate and House elections, and were more likely to declare to be Republican than Democrat in the CBS/NYT partisanship polls.

Neuroticism and ideological orientation each accounted independently for significant and substantial variance in the Total MPI 2002, President MPI 2002, State Senate MPI 2002, and CBS/NYT 1998-2002 partisanship criteria when they entered the equations in either order. For the U.S. House MPI 2002 criterion, Neuroticism accounted for significant variance only when it entered the equation before ideology. For the U.S. Senate MPI 2002 criterion, Neuroticism did not significantly contribute in either order. For the State House MPI 2002 criterion, ideology did not contribute when it entered the equation after Neuroticism. For the Governor MPI 2002 criterion, neither Neuroticism nor ideology accounted for significant variance when they entered the equation in either order.

For each of the eight partisanship criteria, whether relations were statistically significant or not, low Neuroticism and conservative ideology tended to be associated with Republican choices. Overall, although a degree of overlap in the predictive capacities of Neuroticism and ideology was evident, the results clearly show substantial independence in the relations of Neuroticism and ideology to partisanship. This independence was especially strong for the Total MPI 2002, President MPI 2002, and CBS/NYT 1998-2002 partisanship criteria.

## Discussion

This is the first study to demonstrate the widespread importance of Neuroticism as a predictor of Republican-Democrat electoral choices with states of the USA as the units of analysis. The present results were found for three types of national elections, three types of state elections, and a large-scale national polling of Republican-Democrat preferences using Pearson correlation and partial correlation with state SES, white percent, and urban percent as statistical controls. Hierarchical multiple regression also showed that both state conservative-liberal ideological orientation, as assessed through CBS/NYT national polls, and state resident Neuroticism levels account independently for variance in Republican-Democrat preference. These relations also were found when state SES, state white percent, and state urban percent for the years from 1998 to 2002 were statistically considered and controlled. In contrast, the other Big Five variables played only minor roles, or no role at all, in predicting partisanship.

More specifically, the hypothesis that lower state resident Neuroticism is associated with greater Republican leaning was amply supported with Republican-Democrat partisanship variables based on state data regarding the U.S. Presidency, U.S. House, U.S. Senate, state House, state Senate, state Governorship, and CBS/NYT national polls. The mean partial correlation was  $-.46$  for the eight partisanship indicators, with a high of  $-.65$  for the MPI President and CBS/NYT partisanship variables. As well, the corresponding Pearson correlations were not much smaller with a mean of  $-.42$  and a high of  $-.62$  for the CBS/NYT partisanship variable. Evidently, the relatively strong link between lower Neuroticism and Republican choices was not influenced to a high degree by state differences in SES, white population percentage, or urbanization. In fact, the three demographic variables showed little relation to the eight partisanship variables. Overall, the mean Pearson correlation with party choice was  $.04$  for SES,  $.25$  for white population percent, and  $-.13$  for urban percent.

Supplementary analyses clearly showed that Extraversion and Agreeableness were not related to voting Republican in the current data set. As well, the role of Conscientiousness was quite secondary and vanished entirely when Neuroticism and the three demographic variables served as controls in partial correlation. Significant correlations between Openness and the eight partisanship variables were reduced from three with adjustments for the demographic variables to one with adjustments for Neuroticism and the demographic variables.

Substantial evidence also was produced indicating that the negative correlation between state resident Neuroticism and Republican-Democrat partisanship is somewhat independent of the positive correlation between conservative-liberal ideology and Republican-Democrat partisanship. After partial correlation established that conservative-liberal ideology correlated positively with each of the eight partisanship variables, hierarchical multiple regression strategies taking into account key state demographic control variables showed that Neuroticism and conservative-liberal ideology accounted independently for variance in four of the eight partisanship criteria. Furthermore, Neuroticism and ideology showed particularly strong independent relations to what may be considered the principal partisanship variables in the present research: Total MPI 2002, President MPI 2002, and CBS/NYT 1998-2002. As well, even though relations indicating independence were not statistically significant for the other four partisanship criteria, both low Neuroticism and conservative ideology tended to be associated consistently with Republican preference. Generally, the present results are consistent with the view that states may be higher in Republican support because (1) their residents are higher on the Neuroticism dimension and hence more on the conservative side of the conservative-liberal political spectrum which is related to Republican-Democratic preference, or, because (2) their residents are higher on the Neuroticism dimension and hence directly attracted to certain isolated elements of the Republican Party platform and oratory even though they do not show much in the way of corresponding conservative preference on the ideological dimension.

Relations between Neuroticism and partisanship differed in magnitude across the eight partisanship criteria. For example, the partial correlations in Table 3 show that association was strongest for the president subscale on the 2002 MPI and for the CBS/NYT 1998-2002 Partisanship measure. Both exhibited partial correlations of  $-.65$  ( $p < .001$ ). When compared to the partial correlation of  $-.65$  for the MPI president subscale, the partial correlation for the next largest partial correlation of  $-.38$  for the MPI U.S. House subscale was significantly smaller (Dunn/Clark  $Z = -2.74$ ,  $p < .01$ ). However, the partial correlation of  $-.38$  for the MPI U.S. House subscale was not significantly larger than the partial correlation of  $-.26$  for the MPI U.S. Senate subscale (Dunn/Clark  $Z = -.94$ ,  $p = .650$ ), and the partial correlation of  $-.38$  for the MPI state Senate subscale was not significantly larger than the partial correlation of  $-.23$  for the MPI state Governor subscale (Dunn/Clark  $Z = -.86$ ,  $p = .607$ ).

Perhaps the relation between Neuroticism and partisanship was most pronounced for the MPI president subscale because the electorate tends to be much more involved in the presidential election than other office elections and, therefore, the personalities of the electors may play a larger role in their choices for president. The personalities of respondents to the CBS/NYT polls also are likely to be relatively large and salient influencing factors when they are asked essentially to consider whether they are Democrats or Republicans. However, for some elected offices, incumbency is a strong contributor to election success and it can consequently diminish the impact of personality on candidate choice. For example, almost 80% of incumbent U.S. senators running for reelection since 1914 have won (Gowrisankaran, Mitchell, & Moro, 2006). It also is possible that some discrepancies in the magnitudes of the associations occur simply because only the occupation of elected offices in 2002 is considered in the MPI used in the present study. Other years may give somewhat different degrees of association. For example, when the governor partial correlations were computed with 2004 data, the correlation with Neuroticism rose from a non-significant  $-.23$  to a significant  $-.32$  ( $p < .05$ ).

### How Do the Present Results Compare to Those of Earlier Research?

The only prior study conducted on the relation of party preference to the Big Five with states as the units of analysis was carried out by Rentfrow et al. (2009). These researchers found that Republican voting was associated with lower Openness, higher Conscientiousness, and lower Extraversion in the presidential elections of 1996, 2000, and 2004. They also reported that Republican voting was associated with lower Neuroticism in the 2004 election.

The present study has the 2000 presidential election in common with the Rentfrow et al. (2009) analysis. A noteworthy similarity between the two studies is that in the present study the association between lower Openness and Republican presidential voting was maintained even with controls for state demographics and Neuroticism, and this also was the strongest Big Five relation found by Rentfrow et al. for the 2000 election. However, Rentfrow and his colleagues did not find that Neuroticism was a predictor of partisanship in the election of 2000. Why might this be the case?

The Rentfrow et al. analytical model was a standard multiple regression using only the Big Five as predictors. However, one difference between the analyses in the Rentfrow et al. work and those in the present study is that Rentfrow et al. included Washington, DC, but the present study did not. It is noteworthy that only 8.95 percent of the voters chose Bush in 2000 in DC. This is an extreme value and could have had an undue influence on the results of Rentfrow et al. in regard to the relations of the Big Five to party leaning. Another difference is that Rentfrow et al. used personality scores of 512,394 respondents including those in DC while the present study used personality scores of 617,242 respondents, excluding the 2,155 who resided in DC.

Consequently, this issue was explored by carrying out supplementary analyses (see Note ii) with DC excluded. These computations showed that lower Neuroticism was associated with state percentages voting Republican across the three elections and also suggest that Extraversion was not the strong predictor suggested in the original Rentfrow et al. analysis. The Rentfrow et al. (2009) results may have suffered a degree of distortion by including DC, an apparent outlier.

## How Can the Present State-Level Results Be Interpreted?

The theoretical principles of psychological geography put forth by [Rentfrow et al. \(2008\)](#), when applied in the present political research context, suggest that a state may nurture and sustain an association between lower Neuroticism and Republican preference through five different pathways. In Path A, the most basic and direct pathway, if those in a state are disproportionately lower on Neuroticism, there should be corresponding psychological and behavioral manifestations of lower Neuroticism in that state, including Republican endorsement. In Path B, if psychological and behavioral manifestations of lower Neuroticism are prominent in a state, then those tendencies should eventually lead to the building of institutions that support Republican interests. In Path C, such prevalent psychological and behavioral manifestations of lower Neuroticism can form and maintain a state Republican psychosocial climate that socially influences perhaps even others of contrary disposition to adhere to state Republican norms. In Path D, state institutional and social structure variables resulting from the presence and dominance of those with lower Neuroticism can influence psychological and behavioral tendencies by enhancing or limiting personal opportunities, in this case enhancing opportunities for Republican Party supporters and limiting opportunities for Democrat Party supporters. In Path E, state Republican social norms encouraged by residents lower on the Neuroticism dimension also to some degree may influence the prevalence of lower Neuroticism because socialization processes help to foster the acquisition of somewhat lower neurotic tendencies and suppress the expression of higher neurotic tendencies, because that state may attract people with lower levels of Neuroticism similar to the inhabitants of that state, and because people who are higher on Neuroticism may choose to leave that state.

All five pathways in the [Rentfrow et al. \(2008\)](#) theory through which lower Neuroticism may come to be associated with Republican leaning at the state level ultimately are dependent on the relation between Neuroticism and Republican preference at the individual level of analysis. According to their theory, we should expect to find that individuals who are lower on Neuroticism also endorse the Republican Party. Of course, one must remain cognizant of the fact that finding parallel relations for state-level and individual-level data often is facilitated or hindered by other factors operating at either level of analysis. For example, such cross-level inference issues have been encountered in regard to Conscientiousness ([Möttus, Allik, & Realo, 2010](#)) and voting behavior in the USA (e.g., [Gelman, 2008](#)).

Perhaps there also might be state-level variables that are outside the confines of the five pathways articulated by [Rentfrow et al. \(2008\)](#) that could produce an explanation for the present results. Such state-level variables would have to account for any relations between state partisan choice and state resident Neuroticism found here, and would have to do so with state urbanization, major racial differences, and state SES factors statistically taken into account. At this time, no such qualified candidates are known that would merit such speculation. Perhaps other researchers will be able to put forward potential state-level explanatory variables plausible enough to warrant empirical testing.

As noted earlier, lower Openness was associated with voting for the Republican presidential candidate in the present work and in the lone earlier study at the state level conducted by [Rentfrow et al. \(2009\)](#). Both studies employed the Big Five Inventory ([John & Srivastava, 1999](#)). However, there were few other indications of such an association in the present study when the remaining seven measures of Republican leaning served as the criteria. It is possible that the use of the Big Five Inventory could have been at least partially responsible for this low level of generalization of the link between Openness and political party preference. The 10 Openness items on the Big Five Inventory assess whether the respondent demonstrates originality, curiosity, imagination, invent-

iveness, deep thinking and ingenuity, artistic and aesthetic appreciation, a desire to reflect and play with ideas, a preference for work that is not routine, and sophistication in art, music, or literature. A single Openness score is produced. In comparison, the more often used NEO-PI-R (Costa & McCrae, 1995; McCrae & Costa, 2010) produces a total Openness score and six facet scores for Fantasy, Aesthetics, Ideas, Feeling, Action, and Values. It is apparent from the items on the Big Five Inventory that there is insufficient or nonexistent coverage of the Feelings and Values facets, the facets of Openness that may be most related to ideological orientations and political party preferences (Costa & McCrae). Of course, the facets of Openness coalesce as a factor but the relation to political leaning may be somewhat weakened because of inadequate attention to the Feelings and Values facet content in the Big Five Inventory. Perhaps if Rentfrow et al. had used other partisanship criteria, they too would have found few other relations between Openness and partisanship.

### Is the Association Between Lower Neuroticism and Right-Wing Party Leaning Generalizable to Other Nations?

The political system in the USA has only two major parties, the Republicans and the Democrats, and they are highly polarized on both social and economic issues. The Republicans are socially and economically conservative; the Democrats are socially and economically liberal. In this contemporary context, economic conservatism is associated with the penchant for unrestrained free enterprise and economic liberalism with a desire for at least some government intervention in commerce. Many other nations have more than two major parties with clear left or right orientations and some have coalition parties that are more difficult to categorize as exclusively on the left or the right of the political spectrum. Therefore, it is reasonable to assume that the clarity of the relations found in the present study between Neuroticism and the political party preference is less likely to occur in nations characterized by multi-party politics.

Nevertheless, researchers in some other countries have produced evidence suggesting that the same dynamics regarding the association between Neuroticism and conservatism-party preference may be operative. For example, in Germany, Riemann et al. (1993) found that conservative views were associated with lower Neuroticism and Schoen and Schumann (2007) found that higher Neuroticism was linked to support for the Social Democratic Party (SPD) and the Party of Democratic Socialism (PDS) of the period, both parties espousing social liberalism and a liberal degree of government intervention in the market system. As well, in Poland, Oniszczenko and Jakubowska (2005) found that lower Neuroticism was associated with preference for a free market economy. In Nigeria, Lovegrove (1977) found that the Igbo were lower on Neuroticism and more conservative than other ethnic groups. However, in Italy, historically a country of many parties and coalitions, Caprara, Barbaranelli, and Zimbardo (1999) found no relation between Neuroticism and the party voted for in the last election. In a meta-analysis of studies from a number of countries, Sibley, Osborne, and Duckitt (2012) did find that Neuroticism was negatively correlated with political conservatism but they considered the significant correlation of  $-.033$  ( $p < .01$ ) trivial. It should be noted though that the total number of participants was 70,872 but 36 of the 68 studies included were unpublished.

### Do the Present Results Conflict With Those of Motivated Social Cognition Research?

Some readers might wonder whether the present results regarding the propensity for less neurotic persons to gravitate to the conservative Republican Party can be reconciled with the claim of the highly influential article *Political Conservatism as Motivated Social Cognition* by Jost et al. (2003) that conservatism “serves to reduce fear, anxiety, and uncertainty” (p. 340) and that “fear, danger, threat, and aggression may figure more prominently



in the unconscious motivations of conservatives than liberals” (p. 362). However, despite the apparent surface association, “Neuroticism” only appears twice in the Jost et al. article. At one point, these authors state “To the extent that conservatives are more generally fearful than others, one might expect that they would also exhibit higher levels of Neuroticism, but this does not generally seem to be the case” (p. 362). At another point they note that “our review of research conducted in five different countries and involving 22 tests of the hypothesis suggests that fear and threat are indeed related to political conservatism” (p. 362) but “the correlation is substantially higher if one omits the studies in which Neuroticism was used as the measure of fear and threat” (p. 362). So, any perception of a conflict with the work of Jost et al. probably is illusory.

### Do the Present Results Conflict With Those of Authoritarianism Research?

Perhaps other readers might wonder if the present Neuroticism results can be reconciled with what has been suggested in some research involving the Right-Wing Authoritarianism (RWA) construct, which has been found to be positively correlated with conservatism and political party preference in the USA (e.g., [Altemeyer, 1996](#)). Highly authoritarian persons tend to be more fearful, angry, and hostile ([Jost et al., 2003](#)), perhaps suggesting to some that authoritarian persons might also be higher on Neuroticism. No state-level scores for authoritarianism exist with which to test such an assumption in a state-level study of the association between authoritarianism and Republican choice with Neuroticism taken into account. However, individual-level research has produced results that are fairly clear and consistent: RWA is not related to Neuroticism (e.g., [Akrami & Ekehammar, 2006](#); [Butler, 2000](#); [Sibley & Duckitt, 2008](#)). Consequently, no conflict is likely between the present results and the research on authoritarian personality and conservatism and partisanship.

### Implications for Social Justice

“Social justice” generally refers to beliefs in the principle of human equality and advocacy for the elimination of social, economic, and political inequalities in human affairs. Social justice advocates are predominantly on the left of the political spectrum. To [Jost and Kay \(2010\)](#), “leftists today are distinguished largely by their advocacy for greater social, economic, and political equality” (p. 1132) while “the concept of social justice is sometimes denounced by political conservatives who seek to vindicate existing institutions” (p. 1128). Therefore, extrapolating from the results of the present study, it is expected that voices of social activism are more likely to be heard where residents are higher on the Neuroticism dimension.

Perhaps leftist activists are even higher on Neuroticism than the average leftist. Those high on Neuroticism are more prone to become angry and “research throughout the social and behavioral science reveals that *anger* in response to felt injustice—that is, *moral outrage*—is one of the most robust predictors of participation in collective action and motivation for social change” ([Jost & Kay, 2010](#), p. 1128). There also is evidence that those high on Neuroticism have greater justice sensitivity when they are cast in the role of victims, observers, and perpetrators of injustice, but especially when they are the victims ([Schmitt, Gollwitzer, & Arbach, 2003](#)). Therefore, the higher the Neuroticism of the residents of a state or area, the greater should be the likelihood of more radical social activism.

The concept of “system justification” (e.g., [Jost et al., 2003](#); [Liviatan & Jost, 2011](#)) also appears to play a part in why higher Neuroticism may be associated with a greater affinity for the activism of social justice. System justification can be defined as “the conscious or unconscious motivation to defend, bolster, and justify existing social, economic, and political institutions and arrangements” ([Jost & Kay, 2010](#), p. 1148). Conservatives are more

strongly driven by system justification than liberals (e.g., Jost & Kay). Therefore, in the USA, it follows that Republicans are more motivated by system justification than the Democrats. Those lower on Neuroticism also should be more attracted to and comfortable with a state or area that is politically conservative because “system justification conveys *palliative* psychological benefits, including increased positive affect and (especially) decreased negative affect” (Jost & Kay, p. 1149). Therefore, conservative and Republican states should be much less conducive to social activism.

Perhaps it is fitting here to note that some persons with a discernable disdain for those with a penchant for social justice also have associated higher levels of Neuroticism with a leftist activist orientation. For example, a current YouTube presentation is titled *Neuroticism: The Soul of the Social Justice Crusader* ([www.youtube.com/watch?v=NM-WuFuzJpJs](http://www.youtube.com/watch?v=NM-WuFuzJpJs)). Although the argument is clearly slanted, inaccurate, and propagandistic, the connection is made between higher levels of Neuroticism of the Big Five variety and leftist social justice activism.

## Strengths and Limitations of the Present Study

There are evident measurement strengths in the present research. All of the state-aggregated data were based on large representative state samples. Not having the same persons in all of the samples was not detrimental to the research: The goal was to obtain state-aggregated estimates for state-level analysis. If individual-level variable relations are the foundation for the state-level relations, such sample incongruence is only likely to have reduced the chances of finding significant state-level relations. However, because significant state-level relations were found with variables based on somewhat different samples of the state populations, even greater confidence should be placed in the potency of the assumed underlying associations.

There also are inherent drawbacks in the study. One limitation is the standard restriction that the non-experimental nature of the study precludes sound causal inference from an empirical perspective. But it should be duly noted that this is an area of study in which core requirements of the experimental method, such as randomly assigning cases to levels of independent variables, simply can never be conducted because of practical and ethical considerations. Therefore, it is impossible to empirically determine causality in this context as long as true experimentation remains the only procedure currently in our arsenal of scientific research methods through which causality can be inferred with confidence. Nevertheless, it is theoretically possible that carefully planned and conducted longitudinal research relying on archival data at the state level of analysis could go some distance toward understanding causal properties at the state level by producing an empirical association, establishing an appropriate time order, and minimizing the chances of spuriousness with statistical control of key variables.

Perhaps a second limitation is the small sample size. Obviously, sample size cannot exceed 50 in this context and was limited to 48 in some of the present analyses. Conventional statistical wisdom suggests that the ratio of cases to predictors was not optimal for multiple regression analysis. Smaller samples make regression coefficients less stable and limit the number of predictors that can be used because of the rapid reduction in the degrees of freedom for significance tests. Nevertheless, such analytical strategies with comparably small samples have been successful in the past (e.g., McCann, 1992, 1997, 2008, 2014). It also is vitally important to take into consideration that with 50 cases the sample is the population and with 48 it is almost the entire population. The point and importance of inferential statistics is to estimate the degree of confidence in generalizing from a representative sample to the population. However, this is not a burning issue here because the sample and the population are one and the same or almost one and the same. The use of composites (e.g., SES) and the careful selection of potential predictors also minimized the loss of degrees of freedom.

A third limitation also may exist in the use of the Big Five Inventory ([John & Srivastava, 1999](#)) as the sole measure of personality. [Schmitt et al. \(2007\)](#), who used the Big Five Inventory in their analysis across 56 nations, noted several discrepancies between this 44-item measure and the more comprehensive NEO assessment instruments (see [McCrae & Costa, 2010](#)). For example, in regard to Neuroticism, the Big Five Inventory uses only eight items that appear to tap the anxiety, vulnerability, and depression facets of Neuroticism and ignore the impulsiveness, self-consciousness, and angry hostility facets that are also included in the NEO inventories. However, this apparent shortcoming also may suggest that there is something about the anxiety, vulnerability, and depression facets that is especially important in regard to the association of Neuroticism and conservatism and support for the Republican Party.

A fourth limitation is that we cannot be absolutely sure whether the present state-level results actually stem from corresponding individual-level psychological dynamics involving Neuroticism, ideology, and partisanship. Even if empirical evidence accrues showing that aggregate-level and individual-level relations are consistent, the aggregate-level and individual-level relations still conceivably could be logically independent. State-level relations still could be influenced by separate state-level factors not operative in the domain of individual-level relations of Big Five personality variables and the propensity to make Republican choices. Interpretational pitfalls still could occur when generalizing across analytical levels ([Pettigrew, 1997](#); [Robinson, 1950](#)). However, the present work should be seen as a pioneering endeavor in a potential string of studies that may eventually justify costly investment in extensive multilevel modeling projects to provide more compelling answers to this cross-level interpretational conundrum.

## Directions for Future Research

Many questions remain for further inquiry. For example, are there other state-level variables that potentially could account in whole or in part for the relations found here? Can individual-level research that carefully attends to suitably unbiased participant selection and sound Neuroticism, ideology, and partisanship assessment provide fairly unequivocal evidence that lower Neuroticism is associated with conservative ideology and Republican electoral choices in 21<sup>st</sup> century USA? As well, are particular facets of Neuroticism critical to understanding the dynamics of the relation between Neuroticism and partisanship? Are these relations between personality and partisanship likely to be found in other democratic nations where parties clearly represent the conservative and liberal sides of the political spectrum?

Ultimately, to have greater confidence in dependent correspondence between individual-level and aggregate-level relations in the present research context, large-scale multilevel modeling (e.g., [Hox & Roberts, 2010](#)) could be undertaken with data on all variables collected at the individual level and analyzed to separate individual-level and state-level effects. Such multilevel studies also could be tailored to shed light on the individual and relative capacity of each of the five explanatory pathways ([Rentfrow et al., 2008](#)) through which individual difference variables such as Neuroticism come to exert influence at the state level. For example, in Path C, multilevel modeling could differentiate between compositional and contextual effects, that is, effects due to lower resident Neuroticism and effects due to a conducive psychosocial climate for Republican leaning created and maintained by residents with lower Neuroticism but able to influence even those residents with higher levels of Neuroticism. Sound answers to these questions may have bold implications for understanding and application in the political realm and for the fostering of social justice.

## Conclusion

Rentfrow (2010; Rentfrow et al., 2008) suggested that macro-level research with a geographical perspective and psychological foundations may elaborate our understanding of human behavior. It appears that this novel strategy has the potential to further integrate individual-level and aggregate-level inquiry and promote the synthesis of aspects of psychological, political science, and sociological knowledge. Relations of state-level characteristics to state-level partisanship such as those reported here should be of interest to political scientists *even if* the state-level characteristics include personality differences based on psychological theory and research, and such state-level relations should be of interest to psychologists *because* they are based on personality differences and rooted in psychological theory and research. Some disciplinary purists might disagree. Nevertheless, when faced with empirical aggregate-level relations involving variables grounded in different disciplines, we should strive to arrive at the best interpretation, regardless of the inherent difficulty or the existing boundaries of disciplinary persuasion. Certainly, it does appear that the emerging approach of geographical psychology can be rather fruitful in the current context of personality and partisanship in the USA and perhaps in many other nations as well.

## Notes

i) According to the Big Five Inventory (John & Srivastava, 1999), a person high on the Neuroticism dimension is one who does not remain calm in tense situations, gets nervous easily, handles stress poorly, is easily upset, is not relaxed, can be moody, can be tense, is not emotionally stable, is depressed or blue, and worries a lot. The Big Five framework is concerned with major personality variables that most adequately assess differences and similarities between individuals in the normal range of human functioning. In this political context, it must be emphasized that being highly neurotic or at the unstable pole of this fundamental personality dimension does not in any way imply the existence of a personality disorder or other psychopathological condition. It is important to distinguish the Big Five use of the “Neuroticism” label from the earlier use of the term by Freud and others to refer to a person suffering from a “neurosis,” which included several non-psychotic psychological disorders thought to be most appropriate for psychoanalytic therapy.

ii) A supplementary reanalysis was carried out by the current author after the present study was completed. Regression equations were computed with state percentages voting for Bush in 2000 (Leip, 2014) as the dependent variable and the Big Five entered as a block, with and without DC in the data set. With DC included, the unique contribution of Neuroticism was not significant ( $\beta = -.16$ ,  $t = -1.65$ ,  $p = .106$ ) but with DC out, the unique contribution of Neuroticism closely approached significance ( $\beta = -.22$ ,  $t = -1.90$ ,  $p = .064$ ). As well, with DC out, the unique contribution of extraversion was not significant ( $\beta = -.26$ ,  $t = -1.65$ ,  $p = .107$ ). To further pursue the matter, a Republican leaning composite was created by adding together the state percentages for Dole in 1996, Bush in 2000, and Bush in 2004, and then dividing by 3 with DC included. For this election composite, Cronbach’s alpha was .98. With DC excluded and the Republican composite as the dependent variable, a standard multiple regression equation yielded the following  $\beta$  weights: Openness  $-.63$  ( $p < .001$ ), Conscientiousness  $.63$  ( $p < .001$ ), Extraversion  $-.28$  ( $p = .069$ ), Agreeableness  $-.23$  ( $p = .154$ ), and Neuroticism  $-.24$  ( $p < .05$ ).

iii) Presidential elections are conducted every four years. The result is based on the state winners of the popular vote weighted by the number of Electoral College votes apportioned to each state. A candidate needs to win a majority of Electoral College votes to be declared the winner of the presidential election. The U.S. Senate has 100 senators, two from each state, elected for a 6-year term, but in staggered elections so that one-third of the senators face election every two years. The U.S. House of Representatives has 435 members elected for a 2-year term, with the number from each state roughly weighted by the size of the state population. State Governors are elected in all states for 4-year terms except for a 2-year term in Vermont and New Hampshire. State senators are elected in all states for a 2-year or 4-year term depending upon the state. State house representatives are elected for a 2-year or a 4-year term depending upon the state in all states except Nebraska, which does

not have a state house but only a state senate. An excellent primer for understanding elections and the voting system in the USA is available online at: [http://en.wikipedia.org/wiki/Elections\\_in\\_the\\_United\\_States#State\\_elections](http://en.wikipedia.org/wiki/Elections_in_the_United_States#State_elections)

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