

## **The Socionomic Perspective on Social Mood and Voting: Report on New Mood Measures in the 2006 ANES Pilot Study**

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The research on U.S. voting behavior that the American National Election Studies (ANES) and its predecessor research groups have conducted for almost six decades has contributed vast amounts of knowledge to our understanding of why Americans vote as they do in national elections. At the same time, it is striking, when one looks back over the research reports from all these years, how predominantly the emphasis of this research has been on cognitive and rational thought processes of voters, to the relative neglect of affective and “less than fully rational” processes that affect voting behavior, whether voter turnout or candidate preference. While political scientists in general have not been completely one-sided in their focus (for useful overviews of studies concerning affective processes and voting behavior, see Abelson et al., 1982; Glaser and Salovey, 1998; and Marcus, 2000), there is still some validity to Marcus’ (2000, p. 221) complaint that “...a longstanding bias toward cognitive accounts has dominated the study of political judgment....” The current report offers a small contribution to the growing trend among ANES researchers to attempt to overcome that bias.

### **Introduction and Theoretical Overview**

This report examines the usefulness of the questions we submitted for inclusion in the 2006 ANES Pilot Study. Our questions were aimed at investigating “social mood,” a core concept in the new science of socionomics (Prechter, 1999, 2001, 2003). Socionomics posits that social mood precedes and predicts social events, including election outcomes (Prechter, Goel and Parker, 2007), rather than the other way around: mood is endogenous, not determined reactively by exogenous social events. We have already submitted a summary of socionomic theory to the ANES Board as part of our proposal for the 2007-2009 ANES Panel Study (Parker, 2007a, 2007b), but we repeat here a portion of this brief introduction to socionomics for the benefit of new readers.

The literature regarding theories of emotion and theories about how emotional responses affect political behavior is complex and voluminous (Diener & Emmons, 1984; Watson & Tellegen, 1985; Frijda, 1988; Marcus, 1988; Cacioppo & Berntson, 1994; Damasio, A., 1994; Barrett & Russell, 1998). We will not attempt to review here all the nuances of valence models (unidimensional) vs. circumplex (two-dimensional) theories of emotion, whether the dimensions are valence and activation/intensity, or mastery and threat (Marcus, 1988) or some other theoretical framework.

Almost all of these studies and theories are concerned with conscious perceptions of emotional responses, rather than with what we see as social mood. Unfortunately, some theorists have created considerable confusion in the literature by using “emotion” and “mood” as synonyms. It is important to understand the difference between

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endogenous *mood*, as conceptualized in socioeconomic theory, and *emotional reactions* to exogenous stimuli. Mood, as we use the term, is an endogenous, global activation state with expectational, evaluative, and affective components but no specific external referent, while emotions are affective reactions to specific stimuli (Wright, Sloman & Beaudoin, 1996). Mood can lead to emotions, which is probably the primary means by which mood-states can sometimes become conscious.

Though our research group's main interest is in unconscious social mood, we think that the conscious, mood-related measures of affect on a self-report instrument such as the 2006 ANES Pilot Study can also offer valuable data for our purposes. We are currently exploring unconscious mood and its neural correlates by modifying the Implicit Association Test (Greenwald et al., 1998) in an fMRI study by our colleague Julie Hall at Stanford University (Hall, 2006; the Socionomics Foundation is funding this study). We believe that the neural substrate of unconscious social mood and that of emotional reactions will be found to be different: we posit that paralimbic structures mediate unconscious mood, while cortical structures are more involved in the mediation of conscious emotional reactions.

There are four fundamental principles of socioeconomic theory:

- 1) Shared unconscious impulses to herd in contexts of uncertainty lead to the emergence of mass psychological dynamics that manifest as social mood trends;
- 2) These social mood trends conform to hierarchical fractal patterns that take a repetitive, self-affine form and are therefore probabilistically predictable;
- 3) These patterns of aggregate behavior are form-determined due to endogenous processes rather than mechanistically determined by exogenous causes; and
- 4) These social mood trends determine the character of social actions and are their underlying cause, both in financial markets, political behavior and in other domains.

By “character of social actions” we mean things such as the following (these are all excerpts from Prechter, Goel and Parker, 2007):

This view of social causality pertains specifically to the re-election or rejection of incumbent U.S. presidents. Socionomics posits that when a pessimistic social mood is waxing rapidly, voters will desire a change from the incumbent, and when an optimistic social mood is waxing rapidly, voters will desire to keep the incumbent or his party in office. Moreover, “*the political policies of the incumbent and his challenger are irrelevant to this dynamic*” (Prechter, 2003, p. 57, emphasis in original).

According to the socioeconomic hypothesis, social mood trends significantly determine both elections and trends in the stock market. Prechter (1999b) surmises that voters unconsciously (and erroneously) credit incumbents for their positive moods and blame incumbents for their negative moods: “[In] uptrends in social mood[,] people are. . . desirous of having current conditions maintained. . . of retaining the ‘powers that be’ in as close a form as possible” (Prechter, 1988, p. 6), and in downtrend, people develop a desire for change. Thus, our hypothesis concerning presidential elections is that an increasingly positive social mood, producing a rising stock market, will lead to votes for the incumbent, and an

increasingly negative social mood, producing a declining stock market, will lead to votes against the incumbent.

Stock market movements of the preceding three years or of the preceding four years are significant predictors of election outcomes, whereas the relationship between election outcomes and preceding one- or two- year movement, though consistently positive, is not always significant. These findings are consistent with the socioeconomic hypothesis that people's unconscious impulses to herd simultaneously induce either optimism toward stocks and satisfaction with leaders, or pessimism toward stocks and dissatisfaction with leaders (see Prechter, 1999b; pp. 271-284). These findings often hold true even in the face of contradictory predictions suggested by the logical relationship between a politician's promises and the conscious opinions of the voting public, as collected in self-report measures such as polls of voters' political policy preferences. A rational set of ideas about policies may predict what voters may say, but measures of social mood better predict what voters will do, as they unconsciously act upon their moods along with the rest of the herd.

In other academic disciplines such as economics, affective aspects of decision-making have been studied increasingly along with cognitive aspects. Since Simon's (1957) ground-breaking research in support of his concept of "bounded rationality" in human decisions in areas including economics, there has been so much research exploring affective or psychological processes in economic decisions that new fields such as behavioral economics and behavioral finance, once seen as questionable fringe areas, are now part of the mainstream. Taking affective processes seriously, however, is still "relatively revolutionary in political science" (Glaser and Salovey, 1998, p. 157). Ideas such as socioeconomics' view of the role of social mood in affecting political behavior are still quite novel at this point. The ANES group of researchers are on the cutting edge of political science in their openness to interdisciplinary approaches to understanding the complexity of political behavior, including both cognitive and affective processes. Affective research in the ANES surveys goes back to at least 1968, when the use of the "feeling thermometer" approach to evaluating voters' emotional response to different candidates was first implemented (Weisberg and Miller, 1979). Other major contributors to this affective line of research include Rahn (Rahn, 2000, 2004; Rahn and Rudolph, 2000) and Marcus and MacKuen (Marcus, 1988, 2000; Marcus and MacKuen, 1996; Marcus, Neuman and MacKuen, 2000). The common denominator among all these bodies of research, however, is the assumption of the primacy of cognition and rationality in mediating the influence of affective processes on voting behavior. This view of affective processes as subservient to rational cognition is clear in the work of Marcus and his collaborators, in which they postulate a critical role for "anxiety" in prompting voters to think: "In the end, we see that emotions enhance citizen rationality because they allow citizens to condition their political judgment to fit the circumstances" (Marcus, Neuman and MacKuen, 2000, p. 124). Other contributors to the ANES research go even further. One review of this area of research (Glaser and Salovey, 1998, p. 162) reports:

Moving even further away from supporting an independent effect of affect on political judgment, Rahn et al. (1990) used national survey data to test their causal model of candidate appraisal. They contend that affective reactions to

candidates, although an important mediator of the evaluation process, are based solely on cognitive appraisal and that affect is, therefore, postcognition.

To be sure, the views of these researchers have evolved over time. For instance, Rahn and Rudolph (2000, p. 2) acknowledge that their basic conceptualization of “public mood,” their principal affective construct has changed a great deal since the inception of their research in this area:

...we had become convinced that the concept of public mood was best represented as two bipolar dimensions, a valence factor defined by pleasant and unpleasant (or positive and negative), and an activation or arousal factor, defined by high levels of energy versus low... rather than by separate positive and negative dimensions (as in Marcus and MacKuen 1993, or in our earliest work on this topic, Rahn, Kroeger and Kite 1996).

The socioeconomic view of mood is very different from that of any of these researchers. We believe that all of these political studies, despite their usage of the term “mood,” have not been examining “mood” at all, as it is commonly defined, but rather “emotional reactions,” which are quite different. This distinction between “mood” and “emotion” is not original with us; it has a long tradition in psychological research and theory. Marcus (2000, p. 224) gives several citations for earlier definitions of “mood” vs. “emotion,” and Glaser and Salovey (1998, p. 157) offer this useful summary of definitions:

*Affect* is commonly defined as emotion, mood, or evaluation (Forgas, 1991), although experts debate whether evaluation is fairly included (e.g., Crites, Fabrigar & Petty, 1994). Emotion is characterized by acute, differentiated arousal, whereas mood is more lasting, generally less intense, and may cease to be consciously connected to a triggering stimulus.

We might quibble about some of the details here – socioeconomic theory holds that mood is mostly unconscious and is endogenous, thus never connected to a triggering exogenous stimulus; it also holds that mood has a fractal pattern and is thus characterized by self-similar oscillatory waves that vary over multiple time-frames simultaneously (waves inside waves), rather than simply being “more lasting.” Our main point of agreement with Glaser and Salovey’s definitions is that emotion, unlike mood, is primarily conscious and has a definable external referent, whereas mood does not. Using these distinctions, past ANES research such as the “feeling thermometer” and self-report measures of the form “Has [this candidate] ever made you feel [angry, hopeful, afraid, proud]?” has focused exclusively on emotional reactions to political issues or candidates, rather than mood.

We should clarify that we are not arguing that ANES surveys should focus only on mood rather than emotional reactions. We believe that it is important to study both in order to obtain a richer understanding of how these different affective processes interact both with each other and with cognitive processes. We do think, though, that an expansion of both the range of affective processes studied in ANES surveys and the methods used to measure them is somewhat overdue. While the following call for “more sophisticated research” (Diener, 1999, p. 804) was issued to social psychologists, it

could serve as a useful stimulus for more comprehensive affective research in political science as well:

We are at an end of studies in which people simply report their moods and emotions and the structure of affect is derived from simple correlational analyses. We need to move to improved scales, the control of measurement error, more experimental studies, data beyond global reports, and analyses that differentiate types of emotional experience, such as moods, emotions, and trait levels of affect. Perhaps most important, we need to create stronger theories to explain the existing data.

While the ANES project cannot accomplish all this immediately, and some of these approaches are beyond its purview, it may be practical to move right away to include “analyses that differentiate...” mood vs. emotions. We also believe that socionomics can offer a “stronger theory” that suggests innovative explanations for aspects of voting behavior that had previously been mystifying.

One small example of this may be gleaned from reading Rahn and Rudolph’s (2000) report on their study of “public mood” in the 1998 elections. Rahn and Rudolph first correlated total and net affect with several other items in the 1998 Pilot Study, finding that *net affect* (their *valence* measure) was correlated with positive feelings toward candidates, need to evaluate, average feeling thermometer ratings, and attention to campaign news, among other variables. *Total affect* (their *arousal* measure) was correlated with total affect toward candidates, political interest, need to evaluate, attention to campaign news on TV, and voter turnout.

Rahn and Rudolph were disappointed to find that exposure to negative campaign ads did not cause more negative mood (p. 3). This is where differing theories of mood make a difference: while this “negative finding” ultimately led Rahn and Rudolph to recommend that their “mood items” not be included in the next ANES survey, these same findings (that exposure to campaign ads does not affect mood) could be seen as support for the socionomic thesis that mood causes social events, rather than that social events cause mood, whether such events are campaign ads, news, or other events.

Rahn and Rudolph’s main conclusion is an important one: they found that “higher levels of emotional arousal stimulate the intention to turnout to vote.” Despite this finding, however, they concluded:

Is this result sufficiently interesting to invest in these items for the 2000 study? Had we been able to establish a link between public mood and political campaigns, we might say yes. In the absence of this demonstration, however, we cannot recommend these items to the Board at this time.

Note that Rahn and Rudolph were assuming that the causal direction should be “campaigns → mood changes” rather than seeing social mood itself as causal, as an endogenous motivating affective process. Rahn clearly states elsewhere (Rahn, 2000, p. 133), “Public events are the source of public mood...” She seems to indicate awareness of the importance of the issue of whether affective states have a clearly defined external referent (see Rahn, 2000, p. 133, note 7 where she distinguishes “dedicated affect” from “undedicated affect”), but she classifies “public mood” as a type of “dedicated affect,”

though this feature has historically indicated emotional reactions rather than mood per se.

Of course, it is not quite proper to say that Rahn and Rudolph's study offers support for the socioeconomic concept of mood, since we must acknowledge that these researchers are measuring an affective process that is different from the "mood" we are examining from a socioeconomic perspective. Indeed, later in this report we present empirical evidence that the "public mood" questions in their study and the "social mood" questions in ours are measuring two different things. Our point is merely that one's theory of the relationship between mood, emotional reactions (which we think Rahn and Rudolph's "public mood" actually represents), and related political behavior is of critical importance in assessing the meaning of any empirical research in this general domain of affective processes that affect voting behavior.

It is quite challenging to find valid and reliable measures of affective processes of any sort, whether mood or emotional reactions. There have been challenges both to the "feeling thermometer" measure in ANES surveys and to the use of the particular four items that constitute the previous "public mood" measure. There does seem to be some problem (collinearity) when the same four items are used to measure both valence and arousal. However, in such a complex field of research it may be best to start with fairly simple measures and then proceed from there. While we question the use of our own items to measure a construct such as social mood – self-report measures of affective processes that are primarily unconscious seem questionable on the face of it – we hope to start with these simple measures and progressively add behavioral measures (as we suggest in our ANES Panel Study proposal), later neurophysiological measures (Hall, 2006), and other assessment approaches, so that we can eventually see how the results of these different approaches are related. To begin, let us consider the results of the data from our social mood questions in the 2006 ANES Pilot Study.

### **Results of Data Analysis**

In this section we report the results from our data analysis, along with some suggestions for future research regarding social mood. (See Appendix C for details concerning the methodology that we used to carry out our data analysis.) While there were an extremely large number of theoretically relevant relationships between social mood and other variables in the available data that we could have explored, we chose to focus selectively on just a few particularly relevant aspects of the 2006 ANES Pilot Study data and the data from the 2004 ANES survey (which we merged with the 2006 data prior to our analysis) in order to avoid a data-snooping bias.

#### ***Data Analysis Previously Completed***

To support our proposal for including our social mood questions in the 2007-2009 ANES Panel Study, we already performed some initial analysis of the 2006 Pilot Study social mood data. This analysis included:

- 1) *F*-tests regarding differences between optimists and pessimists (respondents manifesting positive vs. negative mood) on 15 ANES Pilot Study items.

- 2) Binomial probability tests re predicting *direction* of correlations between social mood questions and 15 other ANES Pilot Study items.
- 3) Distribution analysis of Version A vs. Version B of social mood questions.

These three analyses were included in our Panel Study proposal to support our decision to recommend using Version A instead of Version B of the social mood questions on the 2007-2008 ANES Panel Study. The *F*-tests were rather inconclusive (and did not yield impressive *p*-values), whereas the binomial probability tests were quite impressive (80% correct predictions using Version A, *p* = 0.018). This latter analysis and the distribution analysis both supported Version A over Version B; a summary of this analysis is included below in Appendix B.

***Distribution of Personal/Social Mood across Demographic Groups***

Since version A of personal and social mood appeared to be best according to our previous research (see Appendix B), we carried out all of the following data analyses using that version. First, we ran Kruskal-Wallis tests in order to determine whether personal and social mood was different for various demographic groups. We present the results in the following tables:

**Table 1**  
**Ethnicity: Based on responses to question V043299a**

**Ranks**

	V043299a	N	Mean Rank
PersonalMoodVA	10.0	45	163.92
	20.0	7	137.07
	30.0	7	131.50
	40.0	19	153.29
	50.0	235	157.33
	Total	313	
SocialMoodVA	10.0	46	156.20
	20.0	8	175.75
	30.0	7	130.79
	40.0	19	141.55
	50.0	235	159.89
	Total	315	

(“PersonalMoodVA” = “Personal Mood, Version A”; similarly throughout this report.)

**Test Statistics<sup>a,b</sup>**

	Personal MoodVA	SocialMoodVA
Chi-Square	1.327	1.733
df	4	4
Asymp. Sig.	.857	.785

a. Kruskal Wallis Test

b. Grouping Variable: V043299a

The coding for this question was:

- 10 = Black
- 20 = Asian
- 30 = Native American
- 40 = Hispanic
- 50 = White

The “Mean Rank” in the first table gives an idea of the ordering in which personal and social mood is distributed among groups, although these values are not comparable across different tests. So, for example, from these tables it appears that Black respondents had the highest (most positive) level of Personal Mood, while Native Americans had the lowest level. On the other hand, Asians had the highest level of Social Mood, while Native Americans had the lowest level.

Although these comparisons are interesting, actual results from the test are shown in table “Test Statistics.” The *p*-value for this test was well above 0.05 for both Personal and Social Mood (0.857 and 0.785, respectively). Therefore, the null hypothesis that Personal and Social Mood are equal across racial groups cannot be rejected. We thus do not find any evidence of significant mood variability across races. Theoretically, this is consistent with what socionomic theory would predict, since it is a theory based on social dynamics driven by interactions among *homogeneous agents*, not heterogeneous agents. That is, we posit that the behaviors of homogeneous agents in a society who are interacting as a result of their decision-making in contexts of uncertainty account for the particular fractal pattern of aggregate social behavior observed to emerge in numerous studies, due to the pattern that results from their herding behavior. The description of herding dynamics by socionomics is unique among theories of herding in the social science literature with respect to this feature, since all other major herding theories are based on assumptions of interactions among *heterogeneous agents* (Parker and Prechter, 2005).

This interpretation procedure is valid for all the following tables. Results for grouping by gender are shown in the following tables. The code was:

- 1 = Male
- 2 = Female

**Table 2**  
**Gender: Based on V041109a**

**Ranks**

	V041109a	N	Mean Rank
PersonalMoodVA	1	149	161.12
	2	177	165.51
	Total	326	
SocialMoodVA	1	151	169.49
	2	177	160.24
	Total	328	

Test Statistics<sup>a,b</sup>

	Personal MoodVA	SocialMoodVA
Chi-Square	.195	.807
df	1	1
Asymp. Sig.	.659	.369

a. Kruskal Wallis Test  
 b. Grouping Variable: V041109a

While the mean ranks show that males score slightly higher in Social Mood and females score slightly higher in Personal Mood, this difference was not found to be significant according to the test. Just as we found when examining ethnicity, this finding confirms the socionomic theory about social mood and homogeneous agents: sex differences do not represent a “difference that makes a difference” when it comes to social mood.

The following tables show the results grouped by liberals/conservatives/moderates. Since the power of mean comparison tests increases when the number of groups is small, this grouping was chosen over the 7-point Likert-scale from V043085. Coding was:

- 1 = Liberal
- 3 = Conservative
- 5 = Moderate

**Table 3**  
**Liberal/Conservative Self Placement? Based on V043085a**

Ranks

	V043085a	N	Mean Rank
PersonalMoodVA	1	55	75.40
	3	59	73.98
	5	28	58.61
	Total	142	
SocialMoodVA	1	56	67.42
	3	60	80.52
	5	28	65.48
	Total	144	

Test Statistics<sup>a,b</sup>

	Personal MoodVA	SocialMoodVA
Chi-Square	3.942	3.965
df	2	2
Asymp. Sig.	.139	.138

a. Kruskal Wallis Test  
 b. Grouping Variable: V043085a

While liberals had the highest Personal Mood scores and Conservatives had the highest Social Mood scores, no significant differences for these groups were found for any of the mood measurements. In supplementary materials we had submitted earlier to the

ANES principal investigators, we hypothesized that the relationships we predicted relative to social mood would hold regardless of how liberal or conservative the voter was; these results support our hypothesis. The liberal/conservative dimension is a cognitive one; in contrast, we posit that mood as we define it is an affective process, not a cognitive one. Thus, we would not expect differences on the liberal/conservative dimension to be related to mood differences.

The following tables show the results segmented by Party. The grouping was based on the answers to question Mod19\_A1. Again, this choice was made (rather than the strongly democrat, weakly democrat, etc.) in order to reduce the number of groups and maximize the power of the test. The coding is:

- 1 = Republican
- 2 = Democrat
- 3 = Independent

**Table 4**  
**Party: Based on Mod19\_A1**

**Ranks**

	Generally speaking	N	Mean Rank
PersonalMoodVA	1	62	88.01
	2	64	77.40
	3	33	70.00
	Total	159	
SocialMoodVA	1	62	94.16
	2	65	73.41
	3	33	68.80
	Total	160	

**Test Statistics<sup>a,b</sup>**

	Personal MoodVA	SocialMoodVA
Chi-Square	4.011	9.383
df	2	2
Asymp. Sig.	.135	.009

a. Kruskal Wallis Test

b. Grouping Variable: Generally speaking  
(VERSION 1) R think self Republ, Democrat

From the Mean Ranks, it appears that Republicans score higher according to both measures. The test was rejected for the Social Mood measure, indicating significant differences in Social Mood across these groups, but not for Personal Mood. A pair-wise comparison yields the following results:

**Table 5**  
**Republican vs Democrat**

Test Statistics<sup>a</sup>

	Personal MoodVA	SocialMoodVA
Mann-Whitney U	1716.000	1472.500
Wilcoxon W	3796.000	3617.500
Z	-1.383	-2.673
Asymp. Sig. (2-tailed)	.167	.008

a. Grouping Variable: Generally speaking  
(VERSION 1) R think self Republ, Democrat

**Democrat vs Independent**Test Statistics<sup>a</sup>

	Personal MoodVA	SocialMoodVA
Mann-Whitney U	954.500	991.000
Wilcoxon W	1515.500	1552.000
Z	-.800	-.622
Asymp. Sig. (2-tailed)	.424	.534

a. Grouping Variable: Generally speaking  
(VERSION 1) R think self Republ, Democrat

These results suggest that Democrats and Independents score no differently in their Social Mood scores. On the other hand, it appears that Republicans have significantly higher scores in Social Mood, since the  $p$ -value of the Democrat vs. Republican comparison was 0.008. This result was surprising, since we would have expected that party affiliation would produce no more differences in social mood than did ethnicity or sex differences. Since this finding is unlike our previous ones, we might fairly question whether this difference is more likely to be accounted for by a theoretical problem for us or by a measurement problem.

From the perspective of socionomics, it is hard to make theoretical sense of the difference we found in Social Mood between Democrats and Republicans. Especially in light of the finding that there were no comparable differences between Democrats and independent voters, it is puzzling that Republicans would have higher scores on a positive social mood measure such as this. If it is a genuine finding rather than a methodological artifact, it may be related theoretically to the fact that in socionomic theory, the herding dynamics that are theorized to be critical to the formation of social mood patterns at the aggregate level only arise in contexts of uncertainty. It may be that such herding behavior does not take place among voters who are strongly committed and highly informed along partisan lines: they would have low levels of uncertainty, low levels of herding behavior, and would not demonstrate the related pattern in social mood that we have found to be related to herding in uncertain social contexts. While we had theorized that this would not affect our findings due to the pervasive uncertainty and lack of detailed knowledge among American voters in general (see Delli Carpini and Keeter, 1996), perhaps the level of political commitment and partisan loyalty among Republicans is high enough that “context of uncertainty” is no longer an accurate description of these voters. In such a situation, we would not expect our hypotheses about social mood to hold, at least concerning differences in party

affiliation. This idea would need to be tested, of course, in later studies measuring various aspects of “uncertainty” among voters of different parties, perhaps using a combination of self-report measures (many questions on the ANES surveys may be seen as at least somewhat related to voter levels of uncertainty), and behavioral measures.

An equally plausible explanation for our findings about differences in Social Mood due to party affiliation, however, is that these results represent more of a *measurement problem* than a theoretical problem for the socionomic perspective. That is, our social mood questions in the present survey *may not accurately measure social mood at all*, at least as it is conceptualized in socionomic theory. This is an issue that we are eager to test by means of the inclusion of our social mood questions in the 2007-2009 ANES Panel Study. In a panel study design, we would be able to utilize both a self-report measure and a behavioral measure of social mood (as we have described in our proposal for the Panel Study; see Parker, 2007a). We may well find that behavioral measures of social mood (our first target to measure here is the level of bullishness or bearishness in stock market investing behavior) are more valid measures of social mood, and particularly of unconscious social mood (which we theorize to be more relevant for determining social behavior than conscious social mood), than self-report measures of social mood. Since we are hoping to test this idea in the upcoming Panel Study, we could have an answer on this issue soon. Future research could help confirm or refute this idea. We were encouraged to see that Nosek et al. (2007) have submitted a proposal for the 2007-2009 ANES Panel Study that would circumvent the weaknesses of self-report measures by testing a brief measure of social cognition related to unconscious race and gender biases among voters. Such innovative procedures, if incorporated into the ANES’ methodological repertoire, could eventually help us develop mood evaluation instruments that would permit a powerful test of our question concerning a possible measurement problem underlying these findings about different levels of social mood related to party affiliation. One of our colleagues (Hall, 2006) is currently developing a modification of the Implicit Association Test (IAT) used by Nosek et al. This modification, when refined, could be used to measure unconscious social mood in a fashion that could potentially be much more useful than our current self-report questions about social mood. We are eager to test these various measures against each other, since the results should not only resolve our current question but many more research questions as well. In the meantime, we return to our discussion of the rest of our current findings.

The following tables show the result for Union vs. non-Union households.

**Table 6**  
**Union household: Based on V043290**

**Ranks**

	V043290	N	Mean Rank
PersonalMoodVA	1	55	172.06
	5	269	160.54
	Total	324	
SocialMoodVA	1	56	178.93
	5	270	160.30
	Total	326	

Test Statistics<sup>a,b</sup>

	Personal MoodVA	SocialMoodVA
Chi-Square	.768	1.886
df	1	1
Asymp. Sig.	.381	.170

a. Kruskal Wallis Test

b. Grouping Variable: V043290

Although it appears that Union households score higher in both mood measurements, the Kruskal-Wallis test reveals no significant differences between these groups. Once again, we see evidential support for the “homogeneous agents” notion posited by socionomics: neither Union membership, ethnicity, nor sex differences matter for social mood. Our general theoretical expectation is that social mood does not differ significantly among different subgroups within society, but rather varies over time in accordance with the pattern of herding behavior at each period in time, for almost all such groups.

Finally, we repeat this test grouping by education level. Once more, for the sake of maximizing the power of this test, the grouping was made according to the answers to question V043252, with the following coding (in years of education):

- 1 = Less than 12 years
- 2 = Between 13 and 16 years
- 3 = 17 years or more

Table 7

**Education: Based V043252**

**Ranks**

	V043252edit	N	Mean Rank
PersonalMoodVA	1.00	129	152.96
	2.00	147	163.29
	3.00	50	191.30
	Total	326	
SocialMoodVA	1.00	129	159.17
	2.00	148	162.65
	3.00	51	183.35
	Total	328	

Test Statistics<sup>a,b</sup>

	Personal MoodVA	SocialMoodVA
Chi-Square	6.621	2.581
df	2	2
Asymp. Sig.	.037	.275

a. Kruskal Wallis Test

b. Grouping Variable: V043252edit

The Mean Rank shows that both types of mood appear to be an increasing function of the years of education. The Kruskal-Wallis test showed that there were no significant differences for the Social Mood scores, yet there are differences in the Personal Mood scores. The pair-wise comparison tests yielded the following results:

**Table 8**  
**Less than 12 years VERSUS Between 13 and 16 years**

Test Statistics<sup>a</sup>

	Personal MoodVA	SocialMoodVA
Mann-Whitney U	8872.000	9318.000
Wilcoxon W	17257.000	17703.000
Z	-.971	-.349
Asymp. Sig. (2-tailed)	.332	.727

a. Grouping Variable: V043252edit

**Between 13 and 16 years VERSUS 17 years or more**

Test Statistics<sup>a</sup>

	Personal MoodVA	SocialMoodVA
Mann-Whitney U	3035.000	3272.000
Wilcoxon W	13913.000	14298.000
Z	-1.940	-1.450
Asymp. Sig. (2-tailed)	.052	.147

a. Grouping Variable: V043252edit

While groups 1 and 2 show no significant differences, it appears that group 3 (17 years or more of education) scores significantly higher in Personal Mood scores (*p*-value of 0.052). The lack of significant findings regarding differences in Social Mood is consistent with all other findings in this section other than for party affiliation. The finding of higher Personal Mood scores related to high educational level is consistent with previous research on positive mood and higher education (see Bryan, Mathur and Sullivan, 1996; and Forgas, 2000), and does not represent any contradiction of socionomic theory concerning Social Mood.

Results from this section suggest that the only significant differences in mood scores were observed for:

- Party Affiliation: Republicans show significantly more positive Social Mood.

- Education: Highly educated people show significantly more positive Personal Mood.

As we have discussed, almost all our findings here regarding Social Mood are both consistent with socionomic theory and supportive of the idea of including questions about Social Mood in future ANES surveys. The possible exception, the intriguing anomaly related to party affiliation, might also provide another reason to explore these Social Mood measures further in order to resolve the apparent inconsistency we have discussed in this area.

### *Correlations between personal/social mood and other variables*

Questions that are useful to include in future ANES surveys should predict responses to other conceptually related questions. We already performed some simple correlational analysis, correlating responses to our social mood questions with responses to 15 other 2006 ANES Pilot Study items (see Appendix B). Here we present our data analysis concerning hypotheses about relationships between our social mood questions and other variables on the 2006 ANES Pilot Study. These hypotheses were tested using Pearson's correlation coefficient, and the results are shown in the following table. For each pair of variables, we provide the estimated correlation coefficient, sample size, and  $p$ -value. The last column of this table shows the hypothesis that was being tested, using the item numbers from the relevant module of the Pilot Study, while the first column shows the specific question that was used to compute the correlation coefficient.

As an example, hypothesis A10 was that mood should be correlated with the perception of the respondent of whether he or she thinks that the country is going in the right direction or in the wrong track. This corresponds to the first row in the table. The first column (which reads V043023) shows the specific question number that was used in order to compute this coefficient. The Pearson correlation with each possible Mood measure is shown (for example, the correlation with version A of Personal Mood was 0.065). Also, the  $p$ -value for the coefficient is reported (it is 0.395 for the correlation between this item and Personal Mood version A), and the sample size on which this coefficient was calculated is reported (173 in the above example).

<b>Table 9: Correlations</b>		Personal Mood	Personal Mood	Social Mood	Social Mood	<b>Item</b>
		Version A	Version B	Version A	Version B	
V043023 - Country going in right direction or on wrong track?	Pearson <i>r</i>	0.065	-0.049	0.063	-0.145	A10
	<i>p</i> (2-tailed)	0.395	0.538	0.415	0.068	
	N	173.000	163.000	172.000	160.000	
V043038 – Approve of George W. Bush’s handling of economy?	Pearson <i>r</i>	0.053	0.071	-0.053	-0.023	A10b
	<i>p</i> (2-tailed)	0.338	0.201	0.341	0.677	
	N	325.000	331.000	327.000	328.000	
V043061 - Better or worse off financially than a year ago?	Pearson <i>r</i>	0.008	-0.037	-0.002	-0.108	C4
	<i>p</i> (2-tailed)	0.888	0.507	0.971	0.051	
	N	323.000	329.000	325.000	326.000	
V043063 – Expect 1 yr. from now to be better or worse financially?	Pearson <i>r</i>	-0.016	0.074	0.017	0.086	C5
	<i>p</i> (2-tailed)	0.772	0.183	0.761	0.126	
	N	312.000	323.000	314.000	320.000	
V043070 – Has G.W. Bush ever made you feel ANGRY?	Pearson <i>r</i>	0.102	-0.045	0.046	-0.050	D1a
	<i>p</i> (2-tailed)	0.169	0.540	0.534	0.494	
	N	183.000	186.000	183.000	186.000	
V043072 – Has G.W. Bush ever made you feel HOPEFUL?	Pearson <i>r</i>	-0.054	-0.038	0.033	0.035	D1b
	<i>p</i> (2-tailed)	0.461	0.605	0.658	0.640	
	N	186.000	186.000	187.000	183.000	
V043074 – Has G.W. Bush ever made you feel AFRAID?	Pearson <i>r</i>	-0.039	0.012	-0.052	0.029	D1c
	<i>p</i> (2-tailed)	0.635	0.893	0.529	0.735	
	N	150.000	139.000	150.000	139.000	
V043076 – Has G.W. Bush ever made you feel PROUD?	Pearson <i>r</i>	-0.035	-0.010	-0.020	-0.090	D1d
	<i>p</i> (2-tailed)	0.618	0.892	0.773	0.207	
	N	210.000	202.000	211.000	199.000	
V043107 – Should U.S. use diplomacy instead of military force?	Pearson <i>r</i>	-0.005	-0.078	-0.109	-0.023	F7
	<i>p</i> (2-tailed)	0.941	0.241	0.091	0.734	
	N	239.000	230.000	241.000	228.000	
V043142 – Should the U.S. gov’t increase its defense spending?	Pearson <i>r</i>	-0.032	0.024	-0.145	0.065	N2
	<i>p</i> (2-tailed)	0.647	0.731	<b>0.035</b>	0.357	
	N	210.000	207.000	212.000	205.000	
V043206 – Do things about America make you ashamed of U.S.?	Pearson <i>r</i>	-0.066	0.063	-0.028	0.021	Q2b
	<i>p</i> (2-tailed)	0.421	0.402	0.726	0.786	
	N	153.000	178.000	154.000	176.000	
V043207 - Do things about America make you angry about U.S.?	Pearson <i>r</i>	-0.078	0.073	-0.010	0.008	Q2c
	<i>p</i> (2-tailed)	0.338	0.333	0.898	0.916	
	N	153.000	179.000	154.000	177.000	
V043214 – Is U.S. economy better or worse than in 2000?	Pearson <i>r</i>	-0.006	-0.055	0.066	-0.043	S3
	<i>p</i> (2-tailed)	0.920	0.316	0.231	0.436	
	N	326.000	329.000	328.000	326.000	
V043220 – How much guidance does religion provide to R?	Pearson <i>r</i>	0.033	0.049	-0.008	-0.032	W2
	<i>p</i> (2-tailed)	0.550	0.373	0.879	0.568	(2004)
	N	322.000	331.000	324.000	328.000	
How much guidance	Pearson <i>r</i>	0.084	0.074	-0.006	0.028	W2

	N	325.000	333.000	327.000	330.000	
How well could R defend an opinion?	Pearson $r$	-0.144	-0.147	-0.119	0.033	Mod2_
	$p$ (2-tailed)	<b>0.009</b>	<b>0.007</b>	<b>0.031</b>	0.553	1
	N	326.000	332.000	328.000	329.000	
How much of the time trust government to do best for U.S.?	Pearson $r$	-0.038	-0.194	-0.285	-0.261	Mod17
	$p$ (2-tailed)	0.673	0.055	<b>0.001</b>	<b>0.009</b>	_B3
	N	126.000	99.000	128.000	99.000	

From the  $p$ -values in this table, we see that only three of the shown correlations were significantly different from zero at the 0.05 level (numbers in bold in Table 9) if we focus only on the Version A results, as we had already decided to do. The first of these was item N2, the “defense spending” variable. In this case, we found Social Mood (version A) to be significantly negatively correlated with the “defense spending” variable ( $p$ -value = 0.035). Given the coding of this variable, this negative correlation implies that the “better” (more positive, or optimistic) one’s social mood is, the less likely such a person is to want to increase government spending for defense.

Socionomics has found a correlation between negative social mood and aggressiveness toward outsiders. This has implications for international relations, where one considers citizens in other countries to be “outsiders.” One indication of this relationship is that there is an inverse relationship between positive social mood and the frequency of nuclear weapon testing (see Prechter, 1999, pp. 270-271). Thus, this finding of a significant correlation between positive social mood and less preference for increasing government defense spending is consistent with socionomic theory concerning international relations.

The other significant findings in Table 9, looking again only at Version A responses, are for item “Mod2\_1” (Module 2, question 1), related to how well respondents think they could defend their opinion against others, and for item “Mod17\_B3” (Module 17, question B3), related to how much the respondents trust the government to do what is best for the nation. These findings also validate our social mood questions, since conceptually, we would expect more optimistic respondents (in terms of *personal* mood) to be more self-confident, and one would expect more optimistic respondents (in terms of *national* or social mood) to be more trusting of their government. Pessimistic respondents, of course, would be expected to respond the opposite way on such items (less self-confident and less trusting of the government). Note that appropriately enough, the significant correlations with positive *personal* mood occur with questions about positive expectancy about one’s *own* future behavior (the correlation between item Mod2\_1 is also significantly positive for Social Mood, but at a much lower level), while the more significant correlations with positive *U.S.* mood occur with questions about positive expectancy about *government leaders’* future behavior. Since this makes sense conceptually, consistent with socionomic theory, these findings further validate our social mood questions.

All other variables shown in table 9 resulted in non-significant correlation coefficients. While we have focused primarily on significant findings, there are four items for which a finding of non-significant correlation is also worth discussing. These four items are items D1a, D1b, D1c, and D1d, related to whether the incumbent has ever made the respondent feel *angry*, *hopeful*, *afraid*, or *proud*. These items are important for us to discuss because they are the basis for Rahn’s (2000, 2004) “public mood” construct. We have already mentioned some potential methodological problems in Rahn’s method of operationalizing this different concept concerning voters’ “mood.” We can now say that our data analysis suggests that “public mood” and “social mood” as we measure it are two different things. The current findings, of course, do not prove that her methodology is fatally flawed, or that “public mood” is not a useful construct as related to electoral studies. They do indicate, however, that she and we are measuring two different things. While more research is warranted to explore further the differences between our “social mood” and Rahn’s “public mood,” the very wording of these four items (“Has someone

*made you feel like this?*”) fairly clearly indicates that these are measures of exogenously determined emotional reactions, rather than endogenous mood as we have discussed it. Though we have no ability to legislate the usage of separate terminology for “mood” vs. “emotional reactions,” we find this distinction helpful. We also find that using terminology that conflates these two very different ideas is potentially confusing and could slow the progress of research toward better understanding the relationships between various affective processes (including both mood and emotions) and voting behavior. For instance, one set of hypotheses in our proposal for the 2007-2008 ANES Panel Study aims at examining a complex interrelationship between mood-related processes and intense emotional reactions as they impact voting behavior (Parker, 2007b). If we used only one term to describe both sets of processes, such hypotheses would be impossible to explore.

There are two other items, which are theoretically relevant for our study, for which we wanted to conduct a more detailed analysis:

- Approval of George W. Bush’s handling of the economy (from Module 27)
- Perception of recent changes in the nation’s economy (from Module 28, on the perception of whether the economy is better or worse as a whole than in the past)

The correlation coefficients for these items with each measure of Mood and the corresponding confidence interval are shown in Table 10. The “N/A” value appears when one of the bounds of the confidence interval include zero – thus these results should be taken as “not a significant correlation between the item and this measure of mood.”

**Table 10:  
Bush's Handling of the Economy  
(Module 27)**

	Sample Size	Pearson r	Sigma	Z transformation	95 %Confidence Intervals for z'		95 %Confidence Intervals for r	
					Lower Bound	Upper Bound	Lower Bound	Upper Bound
Personal A	164	0.087	0.07881104	0.0872	-0.0672	0.2417	N/A	0.23
Personal B	150	0.11	0.08247861	0.1104	-0.0512	0.2721	N/A	0.26
Social A	165	0.172	0.07856742	0.1737	0.0197	0.3277	0.01	0.31
Social B	149	0.174	0.08276059	0.1758	0.0136	0.3380	0.01	0.32

**Perception of recent changes in  
the Nation's Economy (Module 28)**

	Sample Size	Pearson r	Sigma	Z transformation	95 %Confidence Intervals for z'		95 %Confidence Intervals for r	
					Lower Bound	Upper Bound	Lower Bound	Upper Bound
Personal A	326	-0.072	0.05564149	-0.0721	-0.1812	0.0369	-0.17	N/A
Personal B	330	-0.146	0.05530013	-0.1471	-0.2554	-0.0387	-0.25	-0.03
Social A	328	-0.106	0.05547002	-0.1064	-0.2151	0.0023	-0.21	#N/A
Social B	327	-0.173	0.05555556	-0.1748	-0.2836	-0.0659	-0.27	-0.06

Given scaling in survey (3 representing "worse" and 1 representing "better"), negative correlations imply that a "better" social/personal mood is related to a "better" perception of recent changes in the nation's economy.

**Table 10 - cont.  
Defending an Opinion (Module 2)**

	Sample Size	Pearson r	Sigma	Z transformation	95 %Confidence Lower Bound	95 %Confidence Upper Bound	Intervals for z'	95 %Confidence Lower Bound	95 %Confidence Upper Bound	Intervals for r
Personal A	326	-0.14368572	0.05564149	-0.1447	-0.2537	-0.0356	-0.24	-0.25	-0.03	-0.03
Personal B	332	-0.1465956	0.05513178	-0.1477	-0.2557	-0.0396	-0.25	-0.22	-0.01	-0.03
Social A	328	-0.11945053	0.05547002	-0.1200	-0.2287	-0.0113	-0.22	#N/A	-0.01	-0.01
Social B	329	0.03284156	0.05538488	0.0329	-0.0757	0.1414	0.1414		0.14	0.14

Given scaling in survey (1 represents "Extremely Successful" while 5 represents "Extremely Unsuccessful"), negative correlations imply that "better" social/personal mood is related to defending opinions more successfully.

**Trust the Gov't to do what is best for the country (Module 17\_B3)**

	Sample Size	Pearson r	Sigma	Z transformation	95 %Confidence Lower Bound	95 %Confidence Upper Bound	Intervals for z'	95 %Confidence Lower Bound	95 %Confidence Upper Bound	Intervals for r
Personal A	126	-0.03797372	0.09016696	-0.0380	-0.2147	0.1387	-0.21	-0.37	#N/A	#N/A
Personal B	99	-0.19364795	0.10206207	-0.1961	-0.3962	0.0039	-0.37	-0.43	#N/A	#N/A
Social A	128	-0.28461237	0.08944272	-0.2927	-0.4680	-0.1174	-0.43	-0.43	-0.11	-0.11
Social B	99	-0.26116622	0.10206207	-0.2674	-0.4674	-0.0673	-0.43	-0.43	-0.06	-0.06

Given scaling in survey (1 represents "Always" while 5 represents "Never"), negative correlations imply that "better" social/personal mood is related to higher trust.

The findings revealed in Table 10 are:

- Bush's handling of the economy was uncorrelated with either measure of Personal Mood. It was positively correlated with both measures of Social Mood. On the other hand, since the confidence intervals from "Social A" and "Social B" overlap each other, then neither correlation is stronger than the other one.
- Perception of recent changes in the nation's economy was correlated with both Personal and Social Mood, but only for Version B of these measures. Furthermore, since these confidence intervals overlap, we cannot conclude that either of these correlations is stronger than the other one.

In light of these findings, we cannot say with confidence that the results of the current study show any significant relationship between voters' perceptions of the incumbent president's handling of the economy and their Social Mood. This relationship was of particular interest to us in light of a recent study in which we found that the actual performance of the economy, as measured by the Dow Jones Industrial Average (DJIA), is an excellent predictor of whether voters will retain or reject an incumbent in presidential elections in the U.S. (Prechter, Goel and Parker, 2007). Once again, though, it is unclear whether the finding of no significant relationship between voters' perceptions in these areas and their Social Mood represents a theoretical problem for socionomic theory or merely a measurement issue.

These items may have some relevance for issues such as the "egotropic vs. sociotropic voting" debate (see Nannestad and Paldam, 1994; and Erikson, MacKuen and Stimson, 2000), but the results seem to conflict with each other. If the focus of voters is more on their own pocketbook, as the egotropic voting theorists argue, one would not expect these results. If egotropic voting is dominant, one would predict that perceptions of the incumbent's handling of the economy would be correlated with Personal Mood – but the results here show a correlation with Social Mood, not Personal Mood. On the other hand, these results confound the sociotropic voting theorists also, since perception of recent changes in the economy were found for both Personal and Social Mood (sociotropic voters would be theorized to focus on the nation's economy but only have their Social Mood affected, not both Personal and Social Mood), and these findings were only for Version B, not our more reliable Version A.

In light of these inconsistencies, we are drawn to the idea that once again, these anomalies may represent a measurement problem. Note that we are not looking at actual performance of the incumbent's behavior or that of the economy – rather, these items ask about the voters' *perception* of these issues, and the self-report format of a question about an issue that requires considerable cognitive activity to formulate an answer makes it likely that these responses reflect conscious, rational, deliberate cognition, more than voter unconscious mood. As we mentioned before, in our discussion of the anomalous finding related to party affiliation, future research comparing the results of self-report measures and behavioral measures of mood will help tremendously in resolving inconsistent findings such as these. These inconsistencies, however, do not overwhelm all our other findings that are consistent with socionomic theory; rather, they present us with puzzles yet to be solved by future investigations. To our mind, the

solution is not to jettison all the current useful findings, but rather to complement them with additional ways of measuring the same construct.

### *Comparison of Correlation Coefficients across Groups*

While planning our data analysis for this study, we felt that some of these items might benefit from further data analysis. For instance, it might be worth looking more closely at interaction effects with some items for which the aggregated data did *not* reveal significant correlations between social mood and those items. For instance, even though at the aggregate level, responses to our mood questions were not significantly correlated with a belief in the possibility of change (item Mod1\_1), either for Personal Mood or for Social Mood, is it possible that optimistic *Democrats* with high levels of Social mood have a significant belief in the possibility of change, while even the most optimistic *Republicans* don't?, etc.

In Table 11, to examine one such interaction effect (among countless others we could have chosen, including the one just mentioned in the preceding paragraph), we show the results for the one comparison of the strength of the correlation coefficient across different population subgroups. We created this segmentation for question “Mod17\_B3” (trust that the government is doing what is best for the country), examining correlations between this trust measure and mood, according to both stock market participation and Liberal/Moderate/Conservative self-description.

Table 11

**Trust the Government to do what is best for the country (Stock Market = Yes)**

	Sample Size	Pearson $r$	Sigma	Z transformation	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Personal A	126	-0.03797372	0.09016696	-0.0380	-0.2147	0.1387	-0.21	#N/A
Social A	128	-0.28461237	0.08944272	-0.2927	-0.4680	-0.1174	-0.43	-0.11

**Trust the Government to do what is best for the country (Stock Market = No)**

	Sample Size	Pearson $r$	Sigma	Z transformation	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Personal A	69	0.07879852	0.12309149	0.0790	-0.1623	0.3202	#N/A	0.30
Social A	71	-0.0901588	0.12126781	-0.0904	-0.3281	0.1473	-0.31	#N/A

**Trust the Government to do what is best for the country (Liberal)**

	Sample Size	Pearson $r$	Sigma	Z transformation	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Personal A	20	-0.02110649	0.24253563	-0.0211	-0.4965	0.4543	-0.45	#N/A
Social A	21	-0.54382016	0.23570226	-0.6096	-1.0715	-0.1476	-0.79	-0.14

**Trust the Government to do what is best for the country (Conservative)**

	Sample Size	Pearson $r$	Sigma	Z transformation	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Personal A	24	-0.41084207	0.21821789	-0.4366	-0.8643	-0.0089	-0.69	0.00
Social A	24	-0.63479172	0.21821789	-0.7494	-1.1771	-0.3217	-0.82	-0.31

**Trust the Government to do what is best for the country (Moderate)**

	Sample Size	Pearson $r$	Sigma	Z transformation	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Personal A	13	-0.18157505	0.31622777	-0.1836	-0.8034	0.4362	-0.66	#N/A
Social A	13	-0.13404041	0.31622777	-0.1349	-0.7547	0.4850	-0.63	#N/A

The confidence intervals showed some interesting results:

- The relationship between Social Mood (version A) and trust in the government was significant for stock market participants but not for non-stock market participants.
- The relationship between Social Mood (version A) and trust in the government was significant for Liberals and Conservatives alike (and the direction of the relationship was the same). Since the confidence intervals are overlapping, neither group shows a stronger correlation. Finally, Moderates had a non-significant relationship between Social Mood and trust in the government.

Let us consider first the results regarding stock market participation. Given that socionomics uses the major stock market indexes as its primary sociometer, or indicator of social mood, we wanted to find out whether current stock market participation affects the relationship we hypothesize between mood, recent stock market performance, and election or rejection of incumbent presidents. We reasoned that if the relationships we hypothesize do not hold for voters who are not active market participants as well as for those who are, this finding would weaken the theoretical basis for using the market as a general sociometer. Conversely, if these relationships hold whether or not voters are active market participants, this finding would add support for the theoretical basis for using the market as a general sociometer.

As we have found with a couple of our other findings in this study, there are at least two different possible interpretations of these results regarding market participation:

- 1) The most straightforward interpretation of these findings is that since the hypothesized inverse relationship between positive Social Mood and trust in the government held for stock market participants, but not for non-participants, the financial markets may not be ideal for use as a general sociometer. This is a real possibility, and we need to seriously consider it, unfortunate though it may be for some aspects of our research in socionomics. A couple of factors, however, mitigate against this interpretation. First, Prechter (1999, 2003) has assembled over the past 25 years or so many compelling empirical results suggesting that the DJIA and other major financial market indexes are indeed a valid and reliable sociometer, one that has successfully mapped both trends and trend changes in many aspects of social behavior. Secondly, the variable under examination (trust in the government) is measured here with one brief item on a self-report questionnaire. Before dismissing a general sociometer which has demonstrated empirical value over many years, it would seem prudent to collect much more evidence regarding these relationships, using a number of different measurement methods.
- 2) An alternative interpretation of these findings is that once again, the use of self-report measures such as the current Pilot Study questions may not adequately measure a construct such as (primarily) unconscious Social Mood. If this finding is the result of such a measurement problem, it would represent a methodological artifact rather than a theoretical challenge to socionomics' reliance on financial market indexes as a sociometer. If we are in fact measuring some other variable, then these findings make sense: Those

who are accumulating wealth would rate government performance more highly than those who are not.

Fortunately, the practical resolution of this puzzle is the same one we have suggested earlier: it would be useful to compare the results of such correlations between Social Mood and trust in government using both self-report measures and behavioral measures, ideally for both variables being correlated, then break out an analysis of the correlations separately for market participants and non-participants. The inclusion of our social mood questions along with our questions about stock market participation in the 2007-2009 ANES Panel Study would allow much progress in resolving these questions.

Concerning our findings regarding the liberal/moderate/conservative subgroups relative to their correlations between Social Mood and trust in government, the very similar findings for the Liberals and Conservatives, along with the non-significant findings for the Moderates on this issue, suggest that the original aggregated result of non-significance for all three groups combined is valid and was not masking more significant results hidden by interaction effects along this dimension. Had the equally significant findings for Liberals and Conservatives been equally strong but with opposite signs (say, strong positive correlation between Social Mood and trust in government for Conservatives, along with strong negative correlation between Social Mood and trust in government for Liberals), we might be tempted to say that strong partisanship was affecting the relationship between Social Mood and trust in government (since Moderates with weak partisanship could be seen as having their trust in government affected by a different process than were both the strong partisan groups). Since we did not see such a difference in sign in the correlations for Liberals and Conservatives, however, but saw merely a strong positive correlation between Social Mood and trust for both, along with non-significance for Moderates, we must dismiss the significance of these particular details as illusory.

Looking back over our data analysis and its relevance for our socioeconomic hypotheses about social mood and voting, we find either strong or suggestive support for these hypotheses in almost every area of analysis, whether demographic distribution of mood, correlations between responses to our mood questions and other items on ANES surveys, or more detailed analysis. Further study to resolve the minor inconsistencies we found in the data seems warranted.

### **Summary and Recommendations**

Unfortunately, time constraints did not allow us to include every conceivable analysis in the present report. The ideas we that we have discussed here, however, may have at least heuristic value in demonstrating to the reader the potential fruitfulness of exploring social mood in future ANES surveys.

As we have reviewed in this report the results of our previous research on our social mood questions in the 2006 ANES Pilot Study, our findings about the distribution of social mood across various demographic groups, the results of correlating personal and social mood with other variables in the 2004 and 2006 ANES studies, and an examination of interaction effects by comparing correlation coefficients across subgroups of the respondents, we have found support for the usefulness of these social mood items in the vast majority of our results. We have discussed the few exceptions in

some detail (the anomalous findings related to party affiliation, egotropic vs. sociotropic voting, and stock market participation). We have concluded that these minor inconsistencies warrant further study in ways we have specified and that items related to social mood merit inclusion in future ANES surveys. In fact, we have reviewed earlier efforts in the ANES surveys to explore affective processes as they relate to voting behavior and find that some additions and improvements in this general area would be extremely valuable to researchers in this field as political science expands beyond its earlier reliance on self-report measures to include broader multi-method approaches to measure both cognitive and affective processes that are relevant for electoral studies.

As we have mentioned, in the near future we want to use the upcoming ANES Panel Study to compare behavioral concomitants of mood with self-report measures of mood. Using the powerful design of the panel study, we wish to inquire as to the respondents' mood-mediated behavior in the stock market (our most reliable and efficient sociometer) and then correlate the responses with the nature of positive or negative mood reported by those respondents. The results will either validate our use of the stock market as a sociometer, or will give us useful information about conditions and/or inter-individual differences that limit the usefulness of this measurement tool. More generally, it will provide evidence for the relative predictive value of self-report vs. behavioral measures of mood as they relate to voting behavior.

Unconscious mood (as opposed to conscious emotional reactions measured only by self-report measures) has not been sufficiently studied in previous ANES research. While our socio-economic hypotheses are quite novel in the context of electoral studies, previous research in other disciplines have shown unconscious mood to be a powerful predictor of human social behavior. In addition to the voluminous evidence on this topic assembled by Prechter (1999, 2003), numerous other scholars, especially social psychologists, have compiled many empirical studies supporting this idea. Banaji, Lemm, and Carpenter's (2001) review of recent studies illustrates the power and range of unconscious social processes: Over the past 35 years or so, social psychologists have produced evidence of unconscious dynamics affecting areas of human behavior as diverse as memory; self-concept and self-evaluation; biases and stereotypes related to race, gender, and political partisanship; perceptual skills; and many other types of behavior and cognition. Socionomics adds voting behavior in national elections to this list. Westen et al. (2006) have specifically documented the relevance of non-rational affective processes for political attitudes. The inclusion of our questions about social mood in future ANES surveys will provide additional important information regarding such affective processes, and lead to a better understanding of the impact of affective processes on voting behavior in U.S. elections.

### Author's Note

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Appendix A: Social Mood Questions in the 2006 ANES Pilot Study\*

**Module 12 -  
OPTIMISM/PESSIMISM**

Respondents were randomly selected to be administered either Mod12\_A1-Mod12\_A8 or else Mod12\_B1-Mod12\_B8.

**Mod12\_A1**

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IF R SELECTED FOR Mod12\_A1-Mod12\_A8:

**When you think about your future, are you generally optimistic, pessimistic, or neither optimistic nor pessimistic?**

- 1. Optimistic ◇
- 2. Pessimistic ◇ ==> Mod12\_A3
- 3. Neither optimistic nor pessimistic ◇ ==> Mod12\_A4
- 8. Don't know ◇ ==> Mod12\_A4
- 9. Refused ◇ ==> Mod12\_A5

**Mod12\_A2**

---

IF R SELECTED FOR Mod12\_A1-Mod12\_A8:  
IF R IS OPTIMISTIC ABOUT OWN FUTURE:

**Are you extremely optimistic, moderately optimistic, or slightly optimistic?**

- 1. Extremely optimistic ◇ ==> Mod12\_A5
- 2. Moderately optimistic ◇ ==> Mod12\_A5
- 3. Slightly optimistic ◇ ==> Mod12\_A5
- 8. Don't know ◇ ==> Mod12\_A5
- 9. Refused ◇ ==> Mod12\_A5

**Mod12\_A3**

---

IF R SELECTED FOR Mod12\_A1-Mod12\_A8:  
IF R IS PESSIMISTIC ABOUT OWN FUTURE:

**Are you extremely pessimistic, moderately pessimistic, or slightly pessimistic?**

- 1. Extremely pessimistic ◇ ==> Mod12\_A5
- 2. Moderately pessimistic ◇ ==> Mod12\_A5
- 3. Slightly pessimistic ◇ ==> Mod12\_A5

- 8. Don't know <> ==> Mod12\_A5
- 9. Refused <> ==> Mod12\_A5

IF R SELECTED FOR Mod12\_A1-Mod12\_A8:  
 IF R NOT OPTIMISTIC NOR PESSIMISTIC ABOUT  
 OWN FUTURE (OR DK):

**Mod12\_A4**

**Do you lean toward being optimistic,  
 lean toward being pessimistic, or do  
 you not lean either way?**

- 1. Lean toward being optimistic <>
- 2. Lean toward being pessimistic <>
- 3. Do not lean either way <>
- 8. Don't know <>
- 9. Refused <>

IF R SELECTED FOR Mod12\_A1-Mod12\_A8:

**Mod12\_A5**

**And when you think about the future  
 of the United States as a whole, are  
 you generally optimistic, pessimistic,  
 or neither optimistic nor  
 pessimistic?**

- 1. Optimistic <>
- 2. Pessimistic <> ==> Mod12\_A7
- 3. Neither <> ==> Mod12\_A8
- 8. Don't know <> ==> Mod12\_A8
- 9. Refused <> ==> Module 13

IF R SELECTED FOR Mod12\_A1-Mod12\_A8:  
 IF R IS OPTIMISTIC ABOUT FUTURE OF U.S.:

**Mod12\_A6**

**Are you extremely optimistic,  
 moderately optimistic, or slightly  
 optimistic?**

- 1. Extremely optimistic <> <sub>13</sub> ==> Module
- 2. Moderately optimistic <> <sub>13</sub> ==> Module
- 3. Slightly optimistic <> <sub>13</sub> ==> Module
- 8. Don't know <> <sub>13</sub> ==> Module
- 9. Refused <> <sub>13</sub> ==> Module

IF R SELECTED FOR Mod12\_A1-Mod12\_A8:

**Mod12\_A7**

IF R IS PESSIMISTIC ABOUT FUTURE OF U.S.:

**Are you extremely pessimistic, moderately pessimistic, or slightly pessimistic?**

- 1. Extremely pessimistic ◇<sub>13</sub> ==> Module
- 2. Moderately pessimistic ◇<sub>13</sub> ==> Module
- 3. Slightly pessimistic ◇<sub>13</sub> ==> Module
- 8. Don't know ◇<sub>13</sub> ==> Module
- 9. Refused ◇<sub>13</sub> ==> Module

---

IF R SELECTED FOR Mod12\_A1-Mod12\_A8:  
IF R NOT OPTIMISTIC NOR PESSIMISTIC ABOUT FUTURE OF U.S. (OR DK):

**Mod12\_A8**

**Do you lean toward being optimistic, lean toward being pessimistic, or do you not lean either way?**

- 1. Lean toward being optimistic ◇<sub>13</sub> ==> Module
- 2. Lean toward being pessimistic ◇<sub>13</sub> ==> Module
- 3. Do not lean either way ◇<sub>13</sub> ==> Module
- 8. Don't know ◇<sub>13</sub> ==> Module
- 9. Refused ◇<sub>13</sub> ==> Module

\* We include here only Version A of our questions. See Parker (2007a, 2007b) and **Appendix B** for Version B, and for data analysis supporting our decision that Version A was more useful than Version B.

## APPENDIX B:

### Data Analysis Supporting Choice of Version A of

#### Social Mood Questions\*

In order to determine which of the two versions of our social mood questions included in the 2006 ANES Pilot Study were most useful, we examined two factors: (1) Which version was logically more related to the responses to other questions in the Pilot Study? (2) Which version resulted in a wider distribution of responses? To answer the first question, we selected the 15 items from the Pilot Study that conceptually seemed most logically related to our social mood concept. **Table 12** below indicates the predictions we made regarding the 15 variables prior to examining the correlations, along with the success (“Yes”) or lack of success (“No”) of each of our predictions.

#### *Correlations between Social Mood and Other 2006 ANES Pilot Study Questions*

We had four different Social Mood scales: two different versions (different wording of the initial question in Module 12 of the ANES Pilot Study) and questions concerning both one’s personal mood and one’s mood re the nation’s future. These are coded as follows:

Mood-vA1: Social Mood, version A, personal.

Mood-vA2: Social Mood, version A, U.S.

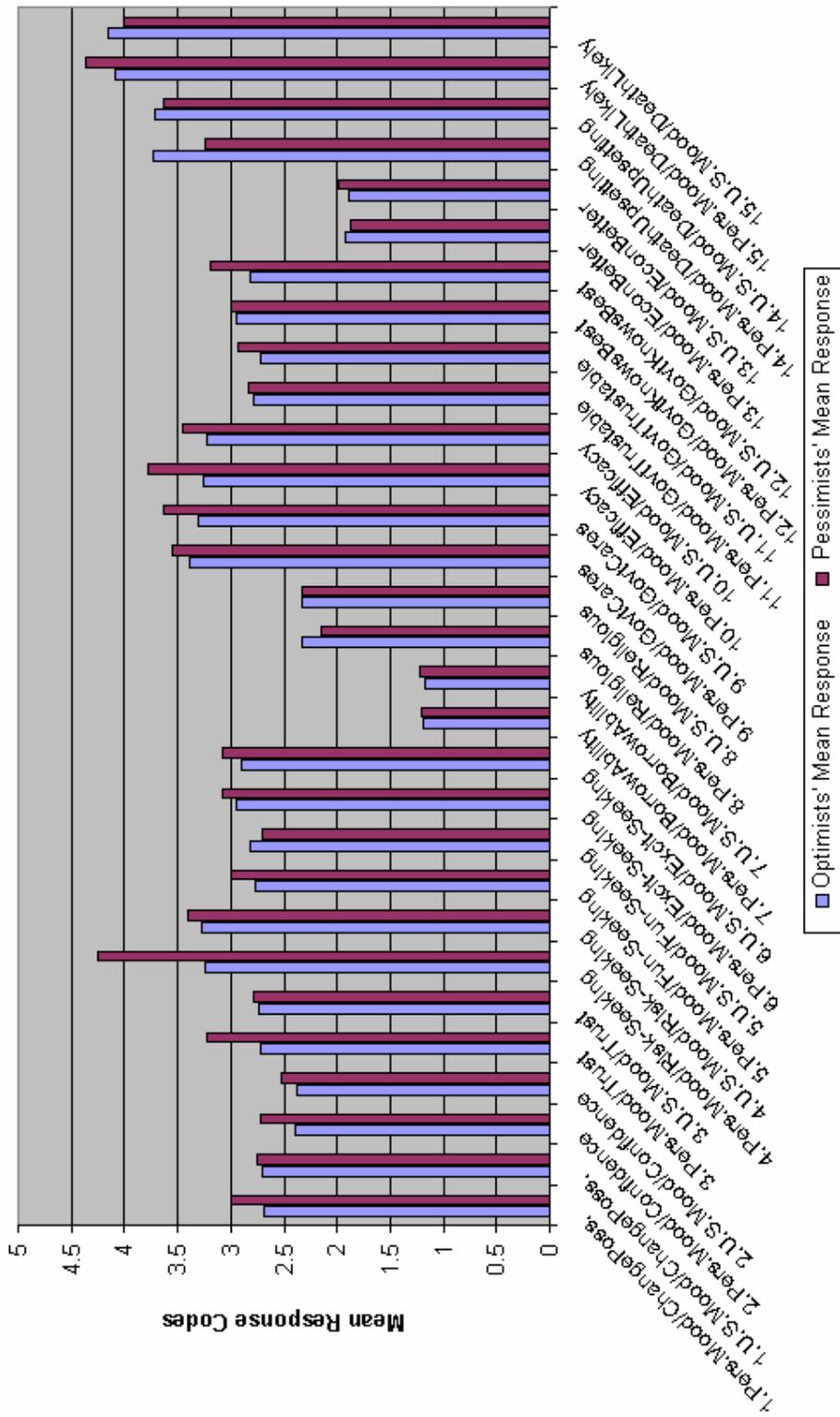
We obtained much more significant results than we did on the *F*-tests we performed on this data (see Parker, 2007b) when we performed a binomial distribution test on our predictions, trying to determine a simpler issue: how likely is it that we could obtain the number of successful predictions that we did by chance alone? Here we are looking only at the *direction* of the outcome, rather than at the exact amount by which optimists differed from pessimists on the 15 ANES questions. These results are summarized in Table 4. We would argue that this is a more relevant measure of the usefulness of our social mood questions, since we are not trying to prove that social mood, by itself, accounts for the majority of the variance in the responses to these 15 other questions. Rather, other factors are presumed to be the central causative factors actually determining these responses. For instance, whether respondents trust the U.S. government most likely has more to do with recent government actions (reflecting the *trustworthiness* of government leaders) than with how optimistic the respondents are. We would, however, question the validity of our social mood questions if most of our predictions were unsuccessful in anticipating the *direction* of the relationship between optimists’ responses and pessimists’ responses.

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\* While we reported this data analysis earlier in the online supplement to our proposal for the 2007-2009 ANES Panel Study (Parker, 2007b), we include a portion of this analysis here in Appendix B for the convenience of the reader.

The relationship between optimists and pessimists' responses to the 15 ANES items is displayed on the chart on Fig. 1. Our predictions were that only two items' score codes (item 8, Religious; and item 15, DeathLikely) would be positively correlated with the social mood score codes, while all other items' score codes would be inversely correlated with the social mood score codes. The direction of these correlations is not meaningful, as it is completely arbitrary whether the various score codes were arranged in ascending or descending order. The meaningful correlation is that between social mood and the 15 concepts. To summarize our theoretical assumptions (and explain why we chose these 15 concepts out of the 29 available on the 2006 ANES Pilot Study), we would posit that optimistic social mood should be positively correlated with: belief in the possibility of change; confidence in one's abilities, including the ability to persuade others to lend one money; trust (in others and in one's government); seeking experiences that are risky, fun, or exciting; faith that one could obtain guidance from religious practices; belief that one's government cares about one's opinion, and that such opinions could influence one's government; and belief that the simultaneous death of everyone on the planet is unlikely. Since suicidal individuals are the most pessimistic, we posit that optimism would be positively correlated with being upset at the thought of one's death (this should not bother the suicidal person), while inversely correlated with expecting universal extinction in the next 100 years.

Fig. 1 -- Social Mood (version A): Optimists' and Pessimists' Responses to 2006 ANES Pilot Study Items



**Table 12: Success of Predictions re Direction of Correlation between  
Social Mood and other ANES items**

Item No. and ANES Col. No.	Variable Description	Direction of Correlation Predicted	Vers. A Pers.	Vers. A U.S.	Vers. B Pers.	Vers. B U.S.
1.Mod1_1	Possibility Of People Changing	Inverse Correlation	Yes	Yes	Yes	No
2.Mod2_1	Confident in Defending Opinion	Inverse Correlation	Yes	Yes	Yes	No
3.Mod6_A1	Ability to Trust Others	Inverse Correlation	Yes	Yes	Yes	Yes
4.Mod7_A3	Risk-Seeking	Inverse Correlation	Yes	Yes	Yes	No
5.Mod7_A5	Fun-Seeking	Inverse Correlation	Yes	No	No	Yes
6.Mod7_B3	Excitement-Seeking	Inverse Correlation	Yes	Yes	No	Yes
7.Mod8_1	Ability to Borrow from Others	Inverse Correlation	Yes	Yes	No	No
8.Mod10_2	Finds Guidance from Religion	Positive Correlation	No	Yes	No	No
9.Mod16_B5	Gov't Caring About Opinion	Inverse Correlation	Yes	Yes	Yes	Yes
10.Mod16_B6	Ability to Affect What Gov't Does	Inverse Correlation	Yes	Yes	Yes	Yes
11.Mod17_A1	Trusts Gov't to Do Right	Inverse Correlation	Yes	Yes	Yes	Yes
12.Mod17_B3	Trusts Gov't To Do Best for U.S.	Inverse Correlation	Yes	Yes	Yes	Yes
13.Mod28_1	U.S. Economy Better Than 1 Yr. Ago	Inverse Correlation	No	Yes	Yes	Yes
14.Mod29_1	How Upset by Idea Of One's Own Death	Inverse Correlation	No	No	No	No
15.Mod29_2	How Likely is Death of All in Next 100 Yr.	Positive Correlation	Yes	No	Yes	Yes
<b>Totals:</b>			12 Yes =	12 Yes =	10Yes=	9Yes=
<b>Percentages:</b>			<b>80%</b>	<b>80%</b>	<b>67%</b>	<b>60%</b>
<b>p-values:</b>			0.018**	0.018**	0.151	0.304

\*\* Significant at the 0.05 level.

Table 12 above displays the outcome of our predictions. An examination of the binomial probability distribution table reveals that for Version A of our social mood questions, the likelihood of 12 correct predictions of the direction of correlation out of 15 trials (the other 15 ANES items) is  $p = 0.018$ , so the incidence of successful predictions for this version is highly significant. The corresponding  $p$ -values for Version B of our social mood questions are 0.151 for Personal Mood and 0.304 for U.S. Mood.

Thus, by this measure Version A of our Social Mood question is more useful than Version B.

### *Distribution of Responses to Version A vs. Version B*

Next we examined the distribution of responses using the two different versions of our social mood questions. Obviously, a question to which everyone responds exactly the same way is not useful at all, so a wider distribution of responses, all things being equal, indicates a more useful question.

Here are the results of our examination of responses to Version A vs. Version B of our Social Mood questions:

- 1) A1 vs. B1: Responses to both versions of this question have very similar distributions, in terms of size (number of subjects responding), mean, and standard deviation. A1 has a slightly higher standard deviation, however, so we would prefer it.
- 2) A2 vs. B2: Again, we find very similar distributions in this comparison, both in size and mean. A2 has a higher standard deviation, so we would choose it.
- 3) A3 vs. B3: Here we find similar distributions in size and mean. A3 has a much higher standard deviation, however, so we choose A3.
- 4) A4 vs. B4: These have very similar distributions in size, mean, and standard deviation. B4 has a *very* slightly higher standard deviation, so one might be tempted to choose B4 over A4, but if the rest of the data set choice were Version A, that would make us stick with Version A here, too.
- 5) A5 vs. B5: Very similar distributions in size. While B5 has a slightly higher standard deviation than A5 (0.84 vs. 0.78), we would use the same reasoning as above and stay with Version A at this point.
- 6) A6 vs. B6: These two sets of responses are similar otherwise, but A6 has a higher standard deviation (0.63 vs. 0.49), so choose A6.
- 7) A7 vs. B7: These two have similar size, but the standard deviation in A7 is 0.65 and that in B7 is 0.47, so A7 looks a bit better.
- 8) A8 vs. B8: Both have a very similar standard deviation, but since Version A has been our choice in most of the other comparisons, we will stay with it here.

While not all of the *F*-tests concerning the relationship between our questions and the responses to other questions on the 2006 ANES Pilot Study yielded significant results (see Parker, 2007b), it is important to remember that the 29 other items in the Pilot Study were not chosen a priori for their relationship with social mood. Rather, these questions were chosen from a wide variety of theoretical perspectives, aimed at 29 totally different theoretical constructs. The fact that half of these other questions (15 out of 29) were considered to be logically related to social mood enough for us to be able to formulate reasonable predictions about the direction of correlation between these varied

questions and the responses of optimists and pessimists is, by itself, a rather striking reason to include our Social Mood questions in future ANES surveys for research purposes. To discover that fully 80% of these predictions (with Version A) were successful, we feel, is truly compelling, suggesting that social mood is a powerful construct that deserves to be explored both in the 2007-2009 ANES Panel Study and future ANES surveys.

Though there are some occasional advantages to Version B here and there, the distributional analysis generally favors Version A. Since Version A also did a better job on the binomial distribution test, we choose Version A of our Social Mood questions to include in the 2007-2009 ANES Panel Study.

**APPENDIX C:****Notes on Methodology Used in Data Analysis*****Data Preparation***

In order to carry out the required data analysis, the data sets for the ANES Pilot Study had to be transformed in order to have them in an appropriate format for the analysis. This process involved, first of all, merging of the 2006 data set with the 2004 survey data downloaded from the ANES website, leaving a total of close to 1,600 variables for each of the roughly 650 observations.

The second step in data preparation involved recoding most of the variables that were analyzed. Mood responses (from Module 12) were recoded as 7-point and 9-point Likert scale scores for each of the versions. For example, we recoded the four responses regarding version A of personal mood measures in this Module into one variable, using the rule:

- Extremely Optimistic was coded with a 9
- Moderately Optimistic was coded with an 8
- Slightly Optimistic was coded with an 7
- Lean toward being optimistic was coded with a 6
- Do not lean either way was coded with a 5
- Lean toward being pessimistic was coded with a 4
- Slightly Pessimistic was coded with an 3
- Moderately Pessimistic was coded with an 2
- Extremely Pessimistic was coded with a 1

We followed a similar rule for recording the four responses for version A of Social Mood. We repeated this recoding with version B of both personal and social mood measures, this time recoding it to 7 levels:

- Very Optimistic was coded with a 7
- ...
- Very Pessimistic was coded with a 1

We applied this recoding not only to personal and social mood responses but also to other variables whose responses were in a similar format. An example is the variable measuring the approval of George W. Bush's handling of the economy, which was also recoded in a Likert-type scale. Finally, in many cases we recoded the "Don't Know" or "Refused" responses to several of the variables in the survey as missing values in order to be able to set up consistent scales for the responses to each question.

### *Methods*

We carried out the data analysis using the following statistical tools and tests:

- Kruskal-Wallis test for mean comparison among more than two groups
- Wilcoxon signed-rank test for mean comparison between two groups
- Pearson's Correlation Coefficient
- Confidence Intervals for Pearson's Correlation Coefficient

We used both the Kruskal-Wallis test and the Wilcoxon signed rank test in order to carry out a demographic analysis of the personal and social mood questions. When the demographic variable allowed for more than one group (for example, Democrat/Independent/Republican), a Kruskal-Wallis test was carried out in order to determine if the personal and social mood scores were similar or significantly different across these groups. A non-rejection of the null hypothesis of this test (which would result with a  $p$ -value higher than 0.05) implies that the mood is similar for the different groups; on the other hand, a rejection implies that the mood is significantly different for at least one of the groups. In the cases of rejection, we conducted the Wilcoxon signed-rank test for each pair of variables in order to determine which of them was different relative to the other ones. We used Pearson's Correlation Coefficient to compute most of the potential associations between items and social/personal mood based on our hypotheses.

Since one of our objectives in the data analysis was to determine if some correlations were stronger than other ones (for example, whether the correlation between mood and some other variable was different for Democrats vs. Republicans), 95% confidence intervals were computed for each correlation coefficient. The interpretation of these confidence intervals in terms of the objectives of the data analysis is as follows:

- If a 95% confidence interval for a correlation coefficient includes zero, then that correlation is not significant at the 0.05 level.
- If the 95% confidence intervals for the correlation coefficients of two pairs of variables *do not overlap*, then those correlations are significantly different from each other.

We computed the confidence intervals using Fisher's  $z$  transformation. An interesting feature of this computation is that the confidence intervals depend only on the point estimate for the correlation coefficient and the sample size.