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Reassessing the Role of Anxiety in Vote Choice

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Much recent political psychology scholarship has examined the role of anxiety in vote choice. This work generally argues that anxiety affects vote choice indirectly by causing citizens to more thoroughly search for and process political information. This indirect effect of anxiety leads citizens to rely less on heuristics, such as party, and more on substantive information, such as policy positions. The most prominent example of this scholarship is the Affective Intelligence (AI) theory of emotions. In this paper, we use cross-sectional and panel survey data to test AI against two simpler alternatives: (1) that emotions directly influence candidate evaluations and (2) that candidate evaluations directly influence emotions. We first show that these simpler alternatives can produce the complex, cross-sectional interactions that provide the principal support for AI. Then, using panel data to better assess causal direction, we find little support for AI, some evidence that emotions directly influence candidate evaluations, and strong evidence that candidate evaluations directly influence emotions. Scholars, we conclude, should be hesitant to abandon these simpler explanations in favor of AI.

KEY WORDS: emotions, affect, voting, partisan identification, issue voting

Introduction

As a subfield within political psychology, the study of emotions has grown rapidly in recent years. A focal point of this research is the relationship between anxiety and candidate preference formation. Much of this work has argued that anxiety primarily influences voter decision making indirectly by "alter[ing] the very process by which decisions are made" (Brader, 2006a). The most prominent example is the Affective Intelligence theory (henceforth AI) put forth by Marcus, Neuman, and MacKuen (henceforth MNM; Marcus, 2002; Marcus & MacKuen,

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1993, 2001; Marcus, Neuman, & MacKuen, 2000). In part, this work applies and builds on dual-process theories from social psychology (e.g., Cacioppo & Gardner, 1999; Chaiken, 1980; Chaiken, Lieberman, & Eagly, 1989; Chaiken & Trope, 1999; Chen & Chaiken, 1999; Petty & Cacioppo, 1986; Watson, Clark, & Tellegen, 1988) and neuropsychology (e.g., Damasio, 1994; Gray, 1987, 1994; LeDoux, 1995, 1996). AI argues that people have two emotional systems: the disposition system, which governs excitement and enthusiasm, and the surveillance system, which governs anxiety, stress, and fear. MNM refer to measures of these systems as "enthusiasm" and "anxiety," respectively. According to the theory, while feelings of enthusiasm merely reflect and reinforce people's political choices, feelings of anxiety cause a fundamental change in people's political thinking. Instead of relying on party identification and other heuristics, anxious voters interrupt their habitual behavior and engage in more effortful information processing (Marcus et al., 2000, p. 56). When voting, they therefore rely more on information about the candidates' personal qualities and issue positions.

While labels for the anxiety dimension vary—Brader (2005, 2006b) calls it the "fear" dimension—AI's explanation of its role in voter decision making has increasingly gained acceptance in the emotions and politics literature (Brader, 2005, 2006b; Marcus, 2000, 2003). For example, Brader (2006a) writes, "current research has found [AI] decidedly more right than wrong." Besides its apparent empirical success, AI has also captured scholars' attention by potentially explaining how democracies function even though most citizens pay little attention to politics. According to AI, citizens do pay attention, but only when their anxiety alerts them to potential danger.

AI contrasts with two long-standing alternative characterizations of anxiety's role in voter psychology. The first alternative, which we call Affect Transfer, postulates that positive and negative emotional reactions to political candidates directly transfer positive and negative evaluations, respectively, onto those candidates.[1] Affect Transfer embodies the intuitive notion that if someone makes you feel anxious, you like him or her less; if someone makes you feel enthusiastic, you like him or her more. Not only is this view of emotions intuitive, but it is also consistent with much research. Recent reviews of the literature conclude that fearful emotional reactions to an object, not surprisingly, induce negative reactions to, and the eschewing of, that object (LeDoux, 1995, p. 211; Zajonc, 1998, pp. 597–598).[2] MNM (2000) describe this straightforward understanding of

[1] MNM (2000), Marcus (2002), and Brader (2006b) describe this view while disagreeing with it. The term "Affect Transfer" comes from Brader (2006b, 69), but the notion is similar to the tradition view of emotions described in MNM (2000, 18–20) and Marcus (2002, 10–12). In contrast to Brader, who focuses on campaign advertising, we use the term to refer to any emotional stimulus that directly transfers positive or negative affect to candidate evaluations.

[2] See also Cacioppo & Gardner, 1999, 201; Davis, 1992; McAllister & McAllister, 1971; Millenson & de Villiers, 1972. Some studies find that negative emotions' effect on attitudes and behavior is stronger than positive emotions' effect (Ito, Cacioppo, & Lang, 1998; Ito, Larsen, Smith, & Cacioppo, 1998; Taylor, 1991), a result consistent with the more general "negativity bias" in decision making

emotions as "a one-way causal influence from emotion to cognition" (p. 20). If Affect Transfer, rather than AI, accurately characterizes voter decision making, feelings of anxiety about a candidate should lead individuals to lower their evaluations of that candidate, whereas feelings of enthusiasm should cause individuals to raise their evaluations.

The second alternative to AI, which we label Endogenous Affect, reverses the causal direction, specifying that preexisting candidate evaluations induce emotional reactions. Endogenous Affect embodies the intuition that candidates you dislike are more likely to make you feel anxious, while candidates you like are more likely to make you feel enthusiastic. As with Affect Transfer, Endogenous Effect is also consistent with much research. A prominent school in the emotions literature argues that "emotions are elicited by evaluations (appraisals)" of objects or situations, such as candidate evaluations (Scherer, Schorr, & Johnstone, 2001).[3] This view is supported by studies indicating that mental reactions often start in parts of the brain associated with cognition before moving to parts of the brain associated with emotions, such as the amygdala (LeDoux, 1995, pp. 223–224).[4,5]

In addition to being consistent with research on emotions, Endogenous Affect is also consistent with a significant body of research indicating that many attitudes and beliefs, as expressed in surveys, largely reflect (or "rationalize") respondents' party and candidate preferences (Achen & Bartels, 2006; Rahn, Krosnick, & Breuning, 1994). Examples of this include perceptions of the economy (Achen & Bartels, 2003; Bartels, 2002a; Kinder & Kiewiet, 1979; Kramer, 1983; Sears & Lau, 1983; Wilcox & Wlezien, 1993), of candidates' personalities (Bartels, 2002b), and open-ended "likes" and "dislikes" about the candidates (Rahn et al., 1994).

In summary, while AI finds support in the psychology literature on emotions, Affect Transfer and Endogenous Affect do as well. These alternatives reflect the close interplay, described in this literature, between the emotion and cognition systems. AI instead reflects another aspect of emotions: their influence on motivation, in this case, the motivation to search for and process political information. To clarify the differences between these three theories, Figure 1 diagrams them.

In this paper, we dissent from the emerging political psychology consensus that AI characterizes the role of emotions in electoral decision making. We

and attitude formation (Cacioppo & Berntson, 1994; Cacioppo, Gardner, & Berntson, 1997; Kahneman & Tversky, 1979, 1984; Lau, 1982, 1985; Peeters & Czapinski, 1990; Taylor, 1991; Tversky & Kahneman, 1981).

[3] For other work on cognitions causing emotions, see Lazarus (1995), Lazarus and Folkman (1984), Parkinson and Manstead (1992), and Oatley and Johnson-Laird (1987).

[4] In LeDoux's (1995, 224) words, "If cognition is defined broadly to include sensory information processing, such as that occurring in the sensory thalamus and/or sensory cortex, as well as the processing that occurs in complex association areas of cortex in the frontal lobes or hippocampus, then emotional processing by the amygdala is highly dependent on cognitive processing" (LeDoux, 1995, 1996; Marcus et al., 2000).

[5] Psychologists have yet to reach a consensus in this area. Each of these three views of emotions finds some support in the literature. As LeDoux (1995, 223) states, "The nature of cognitive-emotional interactions is one of the most debated in the psychology of emotions."

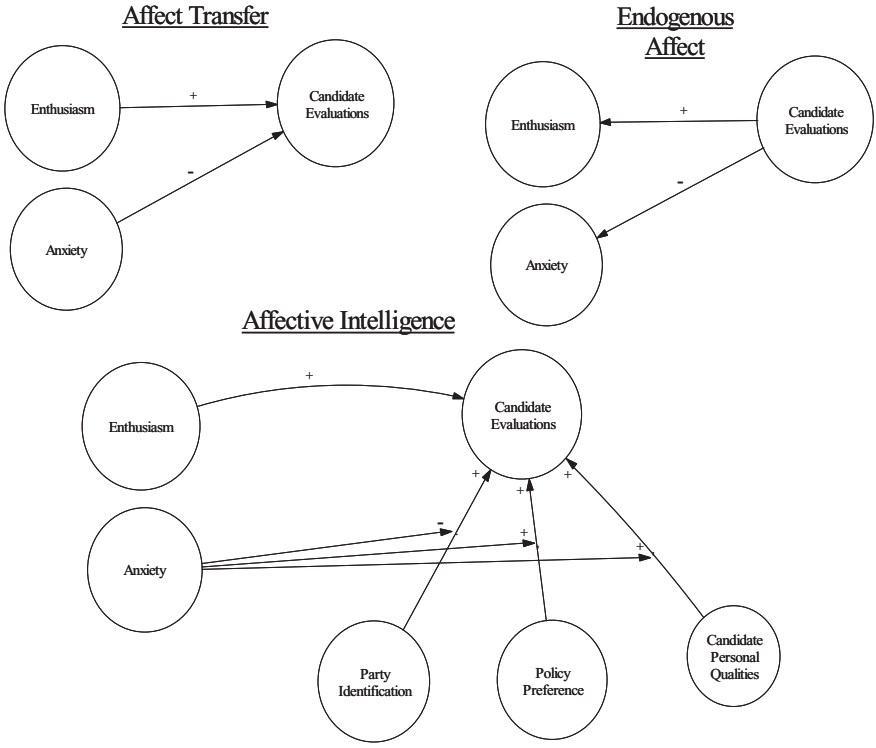

Figure 1. Alternative Accounts of Emotions and Voting Behavior.

reassess several key results thought to support AI and conduct a new analysis using panel data. We pit the three theories against each other and, in contrast with previous work, find little support for AI. Instead, we find some support for Affect Transfer and strong support for Endogenous Affect.

Reassessing Anxiety's Direct Effect

We begin by reassessing a straightforward prediction on which these theories diverge.[6] According to Affect Transfer and Endogenous Affect, the two alternatives to AI, anxiety and candidate evaluations should be at least moderately associated. In contrast, AI predicts a weak or nonexistent bivariate association. It does so because it conceives of anxiety as a general emotional state brought about by

[6] In this article, we use the term "theory" loosely. While AI is a theory of emotions, both Affect Transfer and Endogenous Affect are such simple explanations for the role of emotions in political decision making they may not deserve the title. For example, Brader (2006b, 69) calls Affect Transfer merely a "hypothesis."

"candidates, issues, or the times they live in" (Marcus et al., 2000, pp. 63–64). When describing AI, MNM (2000) use phrases such as "when the electorate is anxious" (p. 61), "subjects feel more anxious and more threatened" (p. 67), or "anxiety in the air" (p. 72). This general state of anxiety leads voters to seek and process political information, but not necessarily to favor any particular candidate evaluation. As Marcus and MacKuen (1993) state, "Our theoretical position . . . suggests that enthusiasm will directly affect the voting decision while anxiety's role will be muted" (p. 677).[7] Thus, these alternatives predict a direct relationship between anxiety and candidate evaluations, while AI does not.

Which prediction best fits the data? Before addressing this question directly, it is worth examining the measures of emotions used to test AI. MNM (2000) and Marcus and MacKuen (1993, 2001) measure anxiety with questions asking about emotional reactions to political candidates. In a typical example, a 1980 American National Election Study (ANES) anxiety question asks:

> I am going to name a political figure and I want you to tell me whether that person, or something he has done has made you have certain feelings like "anger" or "pride," or others I will mention. Think about Ronald Reagan. Now has Reagan—because of the kind of person he is, or because of something he has done—ever made you feel angry?

In each election year since 1980, the ANES has repeated this item for both candidates and for several emotions, including "afraid" and, in some years, "uneasy," and "disgusted," all of which MNM classify as anxiety related. Notably, these questions do not ask about respondents' general level of anxiety but whether particular candidates provoke specific emotions. They thus seem more suited to testing Affect Transfer or Endogenous Affect than AI.

Nevertheless, evidence from two surveys indicates that anxiety, similarly measured, relates only weakly, or not at all, to candidate evaluations, supporting the AI prediction. In a survey conducted during the 1992 presidential primaries, MNM (2000, pp. 97–104) find that anxiety about Patrick Buchanan only weakly relates to overall evaluations of him. Marcus and MacKuen (1993, p. 677) also present evidence from a survey conducted in Missouri during the 1988 presidential election. In the Missouri data, they find that while enthusiasm relates to preferences for the candidates, anxiety does not. Here they measure enthusiasm and anxiety as the difference in respondents' emotional reactions to the major party presidential candidates, which they term *comparative enthusiasm* and *comparative anxiety*. Based on the Missouri data, Marcus and MacKuen (1993) conclude,

[7] As AI has developed in recent publications, this contention has persisted. For example, Marcus (2002, 105) states, "anxiety does not produce any specific judgment, but it does change the way people go about deciding."

Table 1. The Influence of Comparative Anxiety on Candidate Evaluations: A Contradiction?

	(1)	(2)	(3)
	Original finding (Reprinted)	Replication	
	Missouri 1988 survey Comparative Therm. OLS	Pooled ANES Vote Intent Probit	Pooled ANES Comparative Therm. OLS
Comparative Enthusiasm	**1.07****	**2.51****	**0.32****
	(.10)	(0.10)	(0.005)
Comparative Anxiety	**–.05**	**–2.01****	**–0.24****
	(.09)	(0.11)	(0.01)
Party Identification	**.35****	**2.42****	**0.18****
	(.08)	(0.08)	(0.004)
Adjusted R^2	.64		.72
Std. Err. of Estimation	.28		.12
Log Likelihood		−1,882.08	
n	248	7,770	12,660

This table shows that comparative anxiety strongly influences candidate evaluations in the ANES, contradicting Marcus and MacKuen's (1993) Missouri finding of no influence. Column 1 reprints the original finding. All variables coded to range from 0 to 1, with higher values indicating support for Republicans. All models also contain dummy variables for year. Year fixed effects not shown. *p < .10, **p < .05 for two-tailed hypothesis tests

"Enthusiasm matters enormously, anxiety not at all" (p. 677). These studies appear to support AI and contradict the alternative theories' predictions.

Although neither of these surveys is publicly available, we can replicate the Missouri finding with the 1980 through 2004 ANES presidential year surveys. The ANES and the Missouri study use similar questions about emotions, except that the Missouri study asks respondents to place themselves on a 100-point scale as opposed to ANES's "yes" or "no" response. Table 1, column 1, reprints the Missouri finding, and columns 2 and 3 use the ANES data to estimate models of candidate preference with *vote choice* and *thermometer ratings* as functions of *comparative enthusiasm, comparative anxiety*, and *party identification*.[8] We follow Marcus and MacKuen's (1993) coding of the comparative measures: the number of the relevant emotional reactions to one candidate minus reactions to the other. For this and all other statistical models in this article, we code all variables to range from 0 to 1.

In contrast with Marcus and MacKuen's (1993) Missouri findings, columns 2 and 3 show that comparative anxiety is strongly associated with vote choice and feeling thermometer ratings in the ANES, even when controlling for comparative enthusiasm and party identification.[9] For example, with the comparative thermometer as the dependent variable, the coefficient on comparative enthusiasm is 0.32,

[8] Data and questionnaires for ANES surveys are publicly available at http://www.electionstudies.org.
[9] These findings hold when we analyze each year individually, including in 1980 where we can use additional emotion items.

Table 2. The Relationship between Emotions and Candidate Evaluations in the ANES

	Mean Thermometer of Democratic Candidate	Mean Thermometer of Republican Candidate
Enthusiasm (Disposition System)		
Hope about Democrat	**71.7**	44.5
No Hope about Democrat	**41.7**	67.3
Proud of Democrat	**74.2**	45.9
Not Proud of Democrat:	**47.0**	61.5
Hope about Republican	46.3	**71.4**
No Hope about Republican	66.0	**42.0**
Proud of Republican	46.9	**71.1**
Not Proud of Republican	64.4	**43.9**
Anxiety (Surveillance System)		
Angry at Democrat	**42.5**	64.6
Not Angry at Democrat	**64.8**	51.2
Afraid of Democrat	**37.2**	68.8
Not Afraid of Democrat	**62.4**	52.3
Angry at Republican	65.0	**41.6**
Not Angry at Republican	51.3	**65.2**
Afraid of Republican	66.1	**39.5**
Not Afraid of Republican	52.9	**62.6**

This table further supports the evidence in Table 1. Source: Pooled ANES data from the 1980–2004 presidential-year surveys. The number of respondents per cell range from approximately 2,800 to 10,000. Differences in thermometer ratings between those expressing and those not expressing an emotion are significant at the 0.05 level.

while the coefficient on comparative anxiety is not much smaller in absolute terms, –0.24, and both are highly statistically significant. Table 2 shows the relationship between emotions and summary evaluations in more detail by comparing the mean feeling thermometer rating given to presidential candidates by responses to the affect questions in the same ANES data. It suggests the anxiety measures correspond with evaluations much like the enthusiasm measures.[10] For the enthusiasm questions (hope and proud), individuals typically rate candidates who provoke these feelings 30 points higher on the feeling thermometer. For the anxiety questions (angry and afraid), individuals typically rate candidates 20 points lower.

Thus, although recent research focuses on anxiety's indirect effect on candidate evaluation, its direct relationship is substantial. As described above, research-

[10] Given the large sample size, the difference in mean thermometer ratings between those who did and did not express a given emotion is statistically significant in every case. For simplicity of presentation, we omit standard errors from the table.

ers have taken the apparent lack of a direct association between anxiety and candidate evaluations as evidence for AI. Although a direct relationship is not necessarily inconsistent with AI, it seems more consistent with the two alternatives. Of course, with these cross-sectional data, we cannot determine which of the alternatives gives rise to the association. It could arise because emotions lead to candidate evaluations (Affect Transfer) or because candidate evaluations lead to emotions (Endogenous Affect).

Reassessing Anxiety's Indirect Effect

In this section, we reassess the arguably most compelling evidence for AI: MNM's (2000) remarkable finding that anxiety diminishes the powerful role party identification normally plays in vote choice and augments the influence of policy opinions and perceptions of the candidates' character.[11] Before doing so, we first attempt to replicate the original analysis. MNM (2000, p. 118) find this intriguing result using pooled 1980–96 ANES data. To test whether anxiety reduces the effect of party identification, they interact *party identification* with *anxiety*, measured as anxiety about the candidate of one's own party, and find that anxiety reduces the effect of party identification (measured so higher values indicate Republican identification) on *candidate choice* (measured so higher values indicate preference for the Republicans). We reproduce MNM's results in column 1 of Table 3.[12] These are striking findings. Political scientists tend to view party identification as the most important determinant of citizens' political choices and attitudes (Bartels, 2000; Campbell, Converse, Miller, & Stokes, 1980 [1960]; Johnston, Hagen, & Jamieson, 2004; Miller, 1991; Miller & Shanks, 1996). In anxiety, MNM have apparently found a variable that eliminates the strong influence of partisanship, a benchmark of political science voting models.

To test the related prediction that anxious respondents engage in more effortful information processing, MNM (2000, p. 118) use a measure of *candidate personal qualities*, which sums the number of positive and negative comments that respondents volunteer about each candidate's personal attributes, and a measure of *policy preference*, which averages the distance between an individual's ideal point on a series of issues and his or her perception of the candidates' positions.

[11] AI implies other predictions beyond the indirect role of anxiety in voting behavior. For example, some researchers have investigated whether anxiety leads to more political participation, news exposure, and other "information seeking" (e.g., Brader, Valentino, & Suhay, 2004; Feldman & Huddy, n.d.; Marcus et al., 2000). In this paper, we set these questions aside and focus only on the relationship between anxiety and vote choice.

[12] Marcus and MacKuen (1993) also find similar vote choice results in the 1988 Missouri survey using total anxiety averaged across both candidates, but MNM fail to replicate this result in the ANES with total anxiety and switch to anxiety about one's own candidate (Marcus et al., 2000, 117). We thus focus on the ANES results. The Missouri study was also small (n = 248) and does not examine whether anxiety moderates the effects of candidates' personal qualities or policy preferences. Marcus and MacKuen (2001) report similar results using data from fewer years of the ANES.

Table 3. Are the Affective Intelligence Interactions an Artifact? Substituting Candidate Evaluations for Anxiety

	(1) (OLS)	(2) (OLS)	(3) (OLS)	(4) (Probit)	(5) (Probit)
	Original finding	Replication	Artifact Demonstration	Replication	Artifact Demonstration
	Comp. Therm.	Comp. Therm.	Comp. Therm.	Vote Intent	Vote Intent
Party Identification	**0.78****	**0.31****	**0.36****	**3.01****	**4.55****
		(0.01)	(0.01)	(0.09)	(0.15)
Policy Preference	**0.65****	**0.60****	**0.57****	**7.02****	**5.14****
		(0.02)	(0.02)	(0.35)	(0.56)
Candidate Personal Qualities	**0.34****	**0.53****	**0.48****	**4.79****	**3.79****
		(0.02)	(0.02)	(0.34)	(0.56)
Anxiety About Own		**–0.07****			
		(0.02)			
Enthusiasm Other			**0.03**	**1.37****	
			(0.02)	(0.47)	
Thermometer of Own Reversed					**0.77**
					(0.91)
Party Identification × Anxiety Own	**–0.61****	**–0.28****		**–2.26****	
		(0.01)		(0.20)	
Enthusiasm Other			**–0.36****		
			(0.01)		
Thermometer of Own Reversed					**–6.13****
					(0.37)
Policy Preference × Anxiety Own	**0.63****	**0.32****		**0.43**	
		(0.04)		(0.76)	
Enthusiasm Other			**0.20****		
			(0.04)		
Thermometer					**4.41****
					(1.45)
Candidate Personal Qualities × Anxiety Own	**0.44****	**0.13****		**–0.88**	
		(0.04)		(0.70)	
Enthusiasm Other			**0.12****		
			(0.04)		
Thermometer of Own Reversed					**0.28**
					(1.40)
n	7,996	11,203	11,203	8,728	8,728
R^2 / Pseudo R^2	0.63	0.67	0.69	0.63	0.65
Log Likelihood				–2,241.29	–2,138.89
Std. Err. of Estimation	0.24	0.14	0.13		

Source: Pooled 1980–2004 ANES. Entries are ordinary least squares and probit coefficients with standard errors in parentheses. Column 1 is reproduced from Marcus, Neuman, and MacKuen (2000), Table 6.7, p. 118. All variables coded to range from 0 to 1, with higher values indicating support for Republicans. Year fixed effects not shown.

*p < .10, **p < .05 for two-tailed hypothesis tests.

They score these variables so that higher values indicate greater proximity to the Republican candidate. The interactions in column 1 between party identification and these variables suggest that, while candidate personal qualities and policy preference always influence vote intent, their influence increases substantially among those anxious about their own candidate. Thus, MNM's results appear to support AI's claims about anxiety and voting preferences. When voters are at ease, they apparently base their vote on heuristics like party identification. In contrast, when voters are anxious, they appear to rely on more substantive considerations.

In column 2 of Table 3, we attempt to replicate the original results.[13] We expand the pooled dataset to include the 2000 and 2004 ANES surveys, though the results remain essentially the same if we use just the years analyzed by MNM (2000, p. 118). Although our replication differs somewhat from the original, the substantive findings remain unchanged.[14]

We suspect, however, that these findings are an artifact. Above, we establish anxiety's direct association with candidate evaluations. We now show that this direct relationship can produce these findings. To explain how, we begin by noting the unusual coding of the anxiety variable. Instead of summing across both candidates, MNM (2000) code anxiety only with respect to the candidate of a respondent's party. Anxiety is high for a Democrat when he is anxious about the Democratic candidate and high for a Republican when she is anxious about the Republican candidate. Given the direct association and the unusual coding, anxiety may thus behave simply as a measure of disfavor with the candidate of one's party: people coded as high in anxiety will lend to dislike their own party's candidate.

What happens when one interacts this variable with party identification? They should naturally be less likely than otherwise to vote for the candidate they dislike. Thus, we would expect party identification to be less or even unrelated to vote intent among those high in anxiety, precisely the interaction MNM (2000) finds and attributes to AI. In sum, people high on MNM's anxiety measure are an unusual bunch, for they dislike their party's candidate. It should not be surprising

[13] Our model differs from MNM's only in that we include the main effect of anxiety, a difference that has almost no effect on the results. We follow the advice of Kam and Franzese (forthcoming) and Brambor, Clark, and Golder (2006), who recommend including all constituent variables in models with interaction terms.

[14] We attempted to replicate exactly MNM's original finding from column 1, following MNM's coding and using only ANES data from 1980 through 1996. Although our replication produced similar results, the interactions with anxiety are smaller. Despite contacting Marcus and MacKuen, we remain uncertain about MNM's (2000, 118) coding of several variables in Table 6.7 (reprinted in column 1). In particular, MNM describe their dependent variable as "vote inclination" (118), but do not say what variables they used. We tried several variables and used those that produced results most similar to theirs. For the dependent variable, these are comparative thermometer ratings of the presidential candidates coded as ((rating of the Republican) – (rating of the Democrat)) / 200. In columns 4 and 5, we use vote intent as the dependent variable, coded 1 for a Republican vote and 0 for a Democratic vote and using vote choice reported by those who turned out and who the candidate nonvoters said they would have voted for had they turned out. All dependent variables are from the post-election survey.

that they do not vote with their party identification. Thus, MNM's striking finding can be easily explained by theories such as Affect Transfer and Endogenous Affect, which posit a direct relationship between emotions and candidate evaluations.

There are also several plausible explanations consistent with Affect Transfer or Endogenous Affect for the positive interaction between anxiety and both policy preferences and candidate qualities. One possibility, consistent with Endogenous Affect, is that some people care deeply about a policy issue, but disagree with their party's candidate on the issue. This disagreement leads them to dislike the candidate and, by Endogenous Affect, report feeling anxious about the candidate. In this case, anxious individuals should appear more likely to vote consistently with their policy preferences, precisely MNM's finding, even though anxiety played no indirect (or direct) causal role. Another explanation, consistent with Affect Transfer, is that a candidate's actions or attributes lead an individual to feel anxious (angry or afraid or both) and therefore to vote against that candidate, give negative open-ended comments about the candidate, and dislike whatever policies she advocates. Again, this would lead anxious individuals to appear more likely to vote consistently with their policy preferences, precisely MNM's finding, even though anxiety played no indirect causal role. Other explanations consistent with either Endogenous Affect or Affect Transfer are also possible. The key point is that Affect Transfer and Endogenous Affect provide straightforward alternative explanations for these interactions.

Now that we have provided these alternative explanations, we demonstrate that MNM's (2000, p. 118) findings could be artifacts resulting from these alternative explanations. If the interactions MNM find are artifacts of the direct connection between anxiety and evaluations, then replacing anxiety with any similarly coded measure of candidate evaluations should produce the same pattern of interactions in the vote choice models. One variable with which we can make this substitution is MNM's measure of enthusiasm, which MNM (2000) contend (consistent with Tables 1 and 2) directly affects candidate choice. To render the coding of enthusiasm similar to that of anxiety, we use enthusiasm about the other party's candidate. Column 3 of Table 3 presents the same model except substituting enthusiasm about the other candidate for anxiety about one's own candidate.[15] Despite the absence of the surveillance system from this model, the results are similar to the original findings in columns 1 and 2. As with the anxiety interactions, the effect of partisanship drops to almost nothing among those who are enthusiastic about the other party's candidate. Similarly, the effect of policy preferences and candidate qualities increases significantly among those who are enthusiastic about the other candidate. The coefficients in both models are notably

[15] As noted above, columns 2 and 3 of Table 3 use comparative feeling thermometer as the dependent variable in order to most closely replicate MNM's results in column 1. The results are substantively similar when we instead use either vote choice or vote intent (vote choice plus the vote intention of nonvoters) as the dependent variable.

similar in size. Thus, while AI implies that only anxiety produces these interactions, these estimates demonstrate that enthusiasm does too.

Candidate feeling thermometer ratings provide another obvious measure of evaluations. We, therefore, also estimate a model while replacing anxiety with feeling thermometers for the candidate of each respondent's party. To render the coding similar to the anxiety measure, we reverse them, so that high values indicate poor evaluations of the candidate of one's own party. Here, we use vote intent as the dependent variable.[16] Column 4 in Table 3 first attempts to replicate the original (column 2) model with vote intent as the dependent variable. Although we replicate the interaction between anxiety and party identification, we fail to replicate the interactions with policy preference and candidate qualities. The former is small and imprecisely estimated, while the latter is incorrectly signed. If we exclude the main effect of anxiety, as MNM (2000) do, the estimates more closely resemble their original finding: the interaction between anxiety and policy preference becomes larger and statistically significant, while the interaction with candidate qualities becomes positive and marginally significant. Column 5 substitutes the reversed thermometer interactions for the anxiety interactions. Again, the effect of the reversed feeling thermometer is similar to that of anxiety in MNM's original findings (in column 1), but much larger in magnitude. In fact, the thermometer interactions better replicate the original finding than do the anxiety interactions. As before, the effect of partisanship drops to nothing among those who rate their party's candidate poorly on the feeling thermometer. Likewise, the effect of policy preference increases significantly among those who rate their party's candidate poorly.[17] Only the interaction between reversed thermometer and candidate qualities fails to replicate the original AI result. As a whole, these findings provide strong support for the contention that anxiety could produce MNM's fascinating results, not by triggering the surveillance system, but simply because the sentiments tapped by the anxiety survey questions either directly influence or are influenced by candidate evaluations.

Which Alternative Do the Data Most Support? Tests with Panel Data

Although compelling, these findings do not necessarily disprove AI. While we have shown that Affect Transfer or Endogenous Affect could lead the anxiety variable to produce these interactions, the indirect route proposed in AI could also produce them. There are reasons to prefer Affect Transfer or Endogenous Affect, but all these theories are consistent with these results. To gain more insight, we now conduct additional tests that pit AI against these alternatives using panel data.

[16] As noted above, vote intent includes vote choice plus the vote intention of nonvoters, both reported in the post-election survey. The results are substantively similar if we exclude nonvoters.

[17] Because we believe these estimates reflect an artifact, we do not interpret their coefficients.

Reassessing Anxiety's Indirect Effect with Panel Data

One of the principal problems with the cross-sectional evidence above is that, because all variables are measured at the same time, we cannot determine whether anxiety influences candidate evaluations or candidate evaluations influence anxiety. The inability to determine causal direction is an ever-present problem with cross-sectional survey data. One strategy for disentangling causal direction is to use panel data to determine whether, consistent with the AI and Affect Transfer, anxiety precedes candidate evaluations or, consistent with Endogenous Affect, candidate evaluations precede anxiety. Here, we undertake this analysis using the 1980 ANES "Major Panel," which asks most necessary questions in the first three of its four waves.[18]

First, we replicate MNM's (2000, p. 118) model of candidate preference in the panel. We measure anxiety with the same questions used in MNM's (2000, p. 118) analysis. To measure policy preference, we use the policy questions asked repeatedly in the panel, which differ slightly from those available in cross-sectional ANES surveys and used by MNM (2000, p. 118). These questions ask about defense spending, policy towards the USSR, preferences for government services versus lower taxes, and preferences for inflation versus unemployment.[19] To measure perceptions of candidate qualities, we use seven close-ended questions about the candidates' personal qualities instead of the open-ended questions used by MNM (2000, p. 118) because the panel lacks the latter.[20] As the dependent variable, we use the comparative feeling thermometer, coded as Carter thermometer minus Reagan thermometer.[21] As above, we code all variables to vary between 0 and 1.

Using these measures, column 1 of Table 4 generally follows MNM's (2000, p. 118) specification, modeling third wave comparative thermometer ratings as a function of second-wave thermometer ratings and the explanatory variables (and interactions) used by MNM measured in the third wave. Unlike the models in MNM's (2000, p. 118) Table 6.7 and Table 3 of this paper, this includes comparative thermometer ratings from the previous wave as an explanatory variable. This specification essentially models the change in thermometer ratings between the second and third waves while accounting for regression to the mean. Including the

[18] The four waves of the panel were January/February, June/July, September, and after the election. We avoid using the panel's first wave because many respondents remained unfamiliar with Reagan "the candidate" at this early stage of the campaign.

[19] The scale has a Cronbach's alpha of 0.78 in wave 2 and 0.79 in wave 3.

[20] On a four-point scale, these questions ask whether the following qualities describe each candidate: moral, dishonest, weak, knowledgeable, power-hungry, inspiring, and strong leader. Using coding similar to MNM's personal qualities variable, we create an index that calculates: positive responses for Reagan – negative responses for Reagan + negative responses for Carter – positive responses for Carter. Indexes constructed from just the Reagan items or just the Carter items in a given wave have Cronbach's alphas around 0.88.

[21] Since the parties did not choose their nominees until after the first two waves of interviews, the vote intent question only becomes available in the third wave.

Table 4. Assessing Anxieties' Indirect Effect in the 1980 ANES Major Panel

	Dependent Variable: Wave 3 Comparative Thermometer	
	(1)	(2)
	Explanatory Variables Measured in Wave 3	Explanatory Variables Measured in Wave 2
Party Identification	**0.10****	**0.11****
	(0.02)	(0.02)
Policy Preference	**0.17****	**0.05**
	(0.06)	(0.07)
Candidate Personal Qualities	**0.60****	**0.41****
	(0.06)	(0.08)
Anxiety About Own	**–0.17****	**–0.05**
	(0.06)	(0.08)
Party Identification × Anxiety Own	**–0.15****	**–0.02**
	(0.04)	(0.06)
Policy Preference × Anxiety Own	**0.04**	**–0.01**
	(0.12)	(0.16)
Candidate Personal Qualities × Anxiety Own	**0.40****	**0.13**
	(0.11)	(0.18)
Comp. Therm. (Wave 2)	**0.30****	**0.48****
	(0.03)	(0.05)
n	456	456
R^2	0.83	0.71
Std. Err. of Estimation	0.08	0.11

Source: 1980 ANES "Major Panel." Entries are ordinary least squares regression coefficients with standard errors in parentheses. All variables coded to vary between 0 and 1, with higher values indicating support for Republicans.
*p < .10, **p < .05 for two-tailed hypothesis tests.

lagged dependent variable also has the advantage of serving as a proxy for omitted explanatory variables (Finkel, 1995; Markus, 1979). The results in column 1 replicate MNM's findings closely. As in their original model, party identification's effect drops significantly among the anxious. Moreover, the effect of candidate qualities more than doubles among the anxious. Only the interaction between anxiety and policy preference fails to replicate, though the coefficient is in the correct direction. (Candidate qualities and policy preference correlate at 0.67 in the panel data. When we drop the candidate qualities variable and its interaction with anxiety, the anxiety and policy preference interaction increases in size to 0.20 and becomes marginally statistically significant, $p < 0.11$.) Thus, a model of change in support for Carter versus Reagan during the 1980 campaign produces the same pattern of results found by MNM (2000, p. 118), which, we have shown, could be consistent with any of the three theories.

Fortunately, the panel data allow us to address the Endogenous Affect explanation by measuring anxiety (and all other explanatory variables) in a prior wave.

If Endogenous Affect is driving the results, they should vanish if anxiety is measured in a prior wave. Applying this strategy, the model in column 2 of Table 4 tests whether individuals who expressed anxiety in wave two place less weight on their partisan identification and more weight on the candidates' character and policy positions in wave three. The results support Endogenous Affect, not AI. Although partisan identification and candidate qualities do influence change in support for the candidates, anxiety no longer no longer has an indirect effect on them. That is, it no longer diminishes the powerful role party identification normally plays in vote choice and no longer augments the influence of candidate qualities. We have tried other plausible specifications, including omitting candidate qualities from the model, but none produces evidence supportive of AI.[22]

Of course, panel data provide no panacea. Measuring variables in a prior wave eliminates endogeneity, but may introduce other biases. For instance, attitudes measured in previous waves may have changed substantially, making effects difficult to detect because we poorly measure the relevant variables (Finkel, 1995).[23] In this case, however, change in anxiety over the course of the panel seems unlikely to obscure relationships because we are looking for the indirect influence of anxiety on partisan identification, candidate qualities, and policy preference. Although individuals' feelings of anxiety may change between waves two and three, we should still be able to detect anxiety's indirect influence, especially on the effect of variables that tend to be relatively stable, such as partisan identification (Campbell et al., 1960/1980; Green, Palmquist, & Schickler, 2002). Yet, we find none.

In sum, although we can replicate MNM's (2000, p. 118) results with panel data, we only do so when the estimates are potentially biased by Endogenous Affect. When we measure anxiety in a prior wave, eliminating this bias, we find no evidence for AI. This suggests Endogenous Affect, not AI (or Affect Transfer), gives rise to MNM's (2000, p. 118) findings.

[22] MNM (2000) argue that individuals may seek new information about candidates in response to anxiety. This suggests that those who are anxious in wave two may seek new information and change their perceptions of candidate issue positions and personal qualities before wave 3. To test this, we also tried estimating a model similar to that in column 2 of Table 4 but measuring policy preferences and candidate qualities in wave 3. The results are ambiguous but not supportive of AI. The interaction between anxiety and candidate qualities is significant and positive, consistent with AI. However, the interaction between anxiety and party identification is marginally significant and positive and the interaction between anxiety and policy preferences is marginally significant and negative, both inconsistent with AI.

[23] We also estimated models with an Instrumental Variables (IV) approach, using variables from an earlier wave of the panel to instrument attitudes in later waves, while controlling for an instrumented lagged dependent variable. If the IV assumptions are satisfied, this approach eliminates these biases (Finkel, 1995). Unfortunately, the small sample size and high multicolinearity result in highly imprecise parameter estimates. None of the model's coefficients approached statistical significance. Thus, IV estimation fails to confirm or rule out AI interpretation or alternative interpretations. Results are available from the authors.

Affect Transfer or Endogenous Affect?

Since panel data provide little support for an indirect effect of anxiety, we now focus more closely on anxiety's direct relationship to candidate choice. We exploit the same panel data to test whether, consistent with endogenous effect, candidate evaluations directly influence emotions or, consistent with Affect Transfer, emotions directly influence candidate evaluations. We measure influence by testing whether a variable in one wave predicts another variable in future waves while controlling for the lagged dependent variable. In other words, we test for "Granger" causation (Granger, 1969).

We begin with Affect Transfer. Column 1 of Table 5 models third-wave comparative thermometer ratings as a function of second-wave comparative enthusiasm and comparative anxiety, while controlling for second-wave comparative thermometer, partisan identification, policy preference, and candidate qualities. For enthusiasm, the results provide some support for Affect Transfer. Conditional on the controls, individuals who expressed more enthusiasm for Reagan in wave two tended to shift their support to Reagan by wave three. The effect is small but statistically significant at conventional levels. Compared to an individual who expressed enthusiasm (hope and pride) only about Carter in wave two, an individual who was otherwise identical but expressed enthusiasm only about Reagan is expected to be about 0.06 (or 12 degrees) more supportive of Reagan compared to Carter in wave three. In contrast, the coefficient representing anxiety's effect on future candidate evaluations is close to zero and imprecisely estimated. Thus, while the panel data indicate enthusiasm influences candidate evaluations, they suggest anxiety does not.

In the next two columns, we test for Endogenous Affect with respect to anxiety; in other words, whether candidate evaluations influence anxiety. Column 2 models third-wave anxiety as a function of the same set of explanatory variables. The results suggest candidate evaluations do influence anxiety. Conditional on the control variables, individuals who preferred Reagan in wave two tend to become more anxious about Carter than Reagan by wave three. In addition to the comparative thermometer, second-wave partisan identification and candidate qualities also appear to influence anxiety. Since these control variables also influence candidate evaluations, and vice versa, the comparative thermometer coefficient only gives its direct effect on anxiety. In testing Endogenous Affect, however, we are interested in the total (direct and through other variables) effect of candidate evaluations. To estimate the total effect, column 3 excludes other explanatory variables, retaining only the second-wave comparative thermometer and lagged anxiety. In this pared down model, the comparative thermometer coefficient rises substantially. The total effect implies that shifting from the bottom to the top of the comparative thermometer in wave two would lead to a 0.60 increase on the 1-point anxiety scale. Thus, although the Granger causality tests find little evidence that anxiety influences candidate evaluations, we find considerable evidence that

Table 5. Do Emotions Influence Candidate Evaluations or Do Candidate Evaluations Influence Emotions? A Test with the 1980 ANES Major Panel

Explanatory Variables (Wave 2):	(1)	(2)	(3)	(4)	(5)
	Dependent Variables (Wave 3):				
	Comparative Thermometer	Comparative Anxiety	Comparative Anxiety	Comparative Enthusiasm	Comparative Enthusiasm
Comparative Enthusiasm	**0.06****	**0.05**		**0.35****	**0.42****
	(0.02)	(0.05)		(0.05)	(0.04)
Comparative Anxiety	**0.02**	**0.26****	**0.32****	**–0.07**	
	(0.03)	(0.05)	(0.05)	(0.05)	
Comparative Thermometer	**0.44****	**0.22***	**0.60****	**0.40****	**0.67****
	(0.05)	(0.10)	(0.06)	(0.10)	(0.07)
Party Identification	**0.09****	**0.08***		**0.13****	
	(0.02)	(0.03)		(0.03)	
Policy Preference	**0.05**	**0.07**		**0.05**	
	(0.05)	(0.10)		(0.09)	
Candidate Personal Qualities	**0.39****	**0.48****		**0.46****	
	(0.07)	(0.14)		(0.13)	
n	480	480	480	480	480
R^2	0.70	0.43	0.39	0.58	0.56
Standard Error of Estimation	0.11	0.21	0.21	0.21	0.21

Source: 1980 ANES "Major Panel." All explanatory variables are measured in the second wave of the 1980 ANES "Major Panel." All dependent variables are measured in the third wave. Entries are ordinary least squares regression coefficients with standard errors in parentheses. All variables coded to vary between 0 and 1, with higher values indicating support for Republicans.

*p < .10, **p < .05 for two-tailed hypothesis tests.

candidate evaluations influence anxiety. For anxiety, Endogenous Affect best fits the data.[24]

Finally, we test for Endogenous Affect with enthusiasm, that is, whether candidate evaluations also drive feelings of enthusiasm. We do so by estimating, in columns 4 and 5, the same two models, now with third-wave enthusiasm as the dependent variable. The parameter estimates closely resemble those for anxiety. Second-wave comparative thermometer, partisan identification, and candidate qualities all appear to influence enthusiasm. The estimate of the total effect of the comparative thermometer is even slightly larger for enthusiasm than for anxiety. Individuals who prefer Reagan in wave two tend to become about 0.67 (on a 1-point scale) more enthusiastic about Reagan than Carter in wave three. Thus, we find that causation between enthusiasm and candidate evaluations flows in both directions, meaning that both Affect Transfer and Endogenous Affect occur.[25]

In sum, the 1980 "Major Panel" provides no evidence for AI. When anxiety is measured in prior waves, eliminating Endogenous Affect, the relationships found by MNM (2000, p. 118) disappear. Furthermore, Granger causality analyses support Affect Transfer and Endogenous Affect, though the results differ for enthusiasm and anxiety. In the case of enthusiasm, the evidence is consistent with both Affect Transfer and Endogenous Affect. In the case of anxiety, there is no support for Affect Transfer, but considerable evidence of Endogenous Affect.

Conclusion

AI's explanation of anxiety's role in voter decision making has gained increasing prominence in the emotions and politics literature. It offers an intriguing description of the role of emotions in voting behavior, suggesting that individuals process political information differently depending on their level of anxiety. Furthermore, it makes unique predictions about voting behavior that seemed well supported by data.

Nevertheless, existing research has not sufficiently tested AI against simpler alternative accounts of emotions' role in politics. In this paper, we describe two such alternatives that we term Affect Transfer and Endogenous Affect. Using cross-sectional and panel survey data, we test several predictions from AI and these alternatives, when possible exploiting the panel data to assess causal direc-

[24] As we note above, research indicates that people often respond to survey questions in a manner consistent with their candidate evaluations or party identification. Thus, while these results could reflect the influence of candidate evaluations on the emotion of anxiety, they could also reflect the general tendency of survey responses to rationalize candidate preferences.

[25] Although the estimates suggest that candidate evaluations' effect on enthusiasm is larger than enthusiasm's effect on candidate evaluations, the data do not necessarily support this conclusion. The measures of enthusiasm and candidate evaluations differ greatly in both question wording and the nature of the underlying attitude. As a result, they differ in their coding, stability over time, and level of measurement error. All these differences make the magnitude of their coefficients difficult, if not impossible, to compare.

tion. In contrast with previous work, we find little support for AI. Instead, we find some evidence consistent with Affect Transfer and strong support for Endogenous Affect. These alternative accounts can, because of an artifact of coding, produce some of the complicated interaction effects that have apparently supported AI. Instead of anxiety leading people to eschew partisanship and rely more on policy positions and candidate qualities, anxiety leads to the appearance of these findings because it is largely driven by prior candidate evaluations.

Although these results are inconsistent with AI and supportive of the alternatives, they are admittedly based on less than ideal data. There are, however, additional reasons to support these alternatives over AI. One reason is their simplicity (Ariew, 1976). Rather than requiring multiple emotional systems, Affect Transfer and Endogenous Affect explain patterns in survey data with straightforward and uncontroversial assertions, such as people vote against candidates that make them angry or afraid or that people report a candidate has made them feel angry or afraid when they dislike that candidate.

Besides being simpler, Affect Transfer and Endogenous Affect are also consistent with a better reading of the questions used to measure anxiety. As is obvious from their wording, these questions do not ask about general anxiety. Instead, they ask whether a particular candidate inspired a particular emotion and therefore seem likely to tap emotional reactions that directly cause or result from evaluations of the candidate. A face-valid interpretation of these questions is thus more consistent with these alternatives than with AI.

Finally, Affect Transfer and Endogenous Affect are more consistent with existing research, especially in the case of Endogenous Affect. As cited above, many studies find that responses to survey questions largely reflect respondents' partisanship and vote choice. Thus, people's responses to the emotion questions seem to behave similarly to so many other survey probes, including policy preference and candidate qualities questions.

In conclusion, the evidence favors Affect Transfer and especially Endogenous Affect over AI because these alternatives are more supported by the cross-sectional and panel data, simpler, more face-valid, and more consistent with other research. AI has captured scholars' attention because it potentially explains how democracies function even though most citizens pay little attention to politics. Unfortunately, our findings fail to support this promising explanation. While AI could still be salvaged, doing so will require better measures of anxiety and better tests that are not biased by reverse causation.

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