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Can citizens care too much? Investment in election outcomes and perceptions of electoral legitimacy

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A R T I C L E I N F O

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A B S T R A C T

Might there be a downside to citizen engagement with elections? The tendency for citizens who supported a winning candidate or party to be more supportive of the democratic system and more trusting of government than supporters of the losers has been well documented. I test the extent to which individual-level investment in a presidential election campaign amplifies effects of winning or losing using the online component of the 2008 NAES to track the same individuals' from pre-election to post-election. The analysis provides strong evidence of amplifying effects of investment on the relationship between winning or losing and perceptions of electoral legitimacy. Certain types of investment—policy agreement and participation—appear to hold significant implications only for losers and not winners.

It is rare to hear that Americans are too engaged in politics today. Laments about citizens' lack of knowledge or general apathy and disengagement are much more common (Delli Carpini and Keeter, 1996; Eliasoph, 1998; Galston, 2001; Macedo et al., 2005; Putnam, 2000). Might there nonetheless be a downside to citizen engagement? Certainly, some forms of political involvement can prove counter-productive in light of competing ideals of democracy, as when exposure to competing views in the course of everyday interaction leads some citizens to withdraw from political participation (Mutz, 2006). Might the tendency of some citizens to become deeply invested in election outcomes produce similar negative outcomes? When someone firmly believes that one candidate is fundamentally better for the future of the country than another and even devotes her own time and energy to helping her candidate's campaign, might a disappointing loss lead to a loss of trust in the democratic system itself?

The tendency for citizens who support the winning candidate or party in an election to be significantly more supportive of the democratic system and more trusting of government than citizens who supported the losing candidate or party has been well documented (Anderson and LoTempio, 2002; Anderson et al., 2005; Banducci and Karp, 2003; Blais and Gélineau, 2007; Esaiasson, 2011). However, the individual-level variables that affect the magnitude of this relationship have not been as closely examined. To better explain how an individual's engagement with the democratic process can influence his or her support for that process, I test the extent to which individual-level investment in a presidential election campaign amplifies the effects of winning or losing. This study focuses in particular on whether a high level of investment in the campaign affects attitudes towards the electoral process itself.

Using the online panel component of the 2008 National Annenberg Election Survey (NAES), I am able to track the same individuals' attitudes from pre-election to post-election, allowing for strong causal inferences regarding the effects of investment. Employing fixed effects regression analysis, I demonstrate that pre-election attitudes and behaviors condition the effects of winning and losing. My analysis provides strong evidence of the amplifying effects of investment on the relationship between winning or losing and perceptions of the fairness of the electoral process. In other words, investment increases both the positive effects of winning and the negative effects of losing. I identify three specific types of investment that describe distinct categories of engagement with an election: emotional, participatory, and issue investment. Whereas investment in general amplifies attitude changes for winners and losers, certain types of investment—level of policy agreement with the candidates and amount of participation in the campaign—appear to hold significant implications only for losers.

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1. Winners' and losers' perceptions of the electoral process

To date, cross-sectional post-election surveys have been the most prevalent basis for conclusions about the divergence between winners' and losers' attitudes towards the democratic system. These studies generally agree that after an election, political losers express lower levels of confidence in the electoral process and in the system of government than their fellow citizens on the winning side. The aggregate difference between winners' and losers' perceptions has been termed the "legitimacy gap" or the "winner-loser gap" (Anderson et al., 2005). This gap has been found when examining a variety of closely related concepts. For example, electoral winners and losers typically differ substantially from one another in terms of their trust in and satisfaction with democracy (Blais and Gélineau, 2007; Singh et al., 2012), their trust in government officials and institutions (Anderson and LoTempio, 2002; Esaiasson, 2011; Moehler, 2009; Rich and Holmes, 2015), and their belief that a winning party has won the right to implement its preferred policies (Nadeau and Blais, 1993). Losers also have less faith that the election was conducted fairly and they express greater doubts that elections are effective in increasing the responsiveness of government to the people (Banducci and Karp, 2003; Esaiasson, 2011; Moehler, 2009; Singh et al., 2011).

In this study, as in some past work, the outcome of interest is the perceived legitimacy of the electoral process.[1] I use the term *perceptions of electoral legitimacy* to refer to citizens' assessments of whether elections function as intended. In other words, do citizens believe their elections are conducted fairly? Do they think elections make government pay attention to the public? This outcome is of particular interest when we consider that individuals who become more invested in the election may become more knowledgeable about the process—and more likely to form judgments about it—due to enhanced interest and attention (Norris, 2014).

While winners and losers typically differ in their perceptions of legitimacy, evidence that winners actually increase in perceived legitimacy from pre- to post-election while losers decrease in American elections is less consistent due to a shortage of panel data conducive to studying the phenomenon in the American case. Cross-sectional data from the American National Election Studies (ANES) show that in several presidential election years, supporters of the losing presidential candidate were actually *more* trusting of government than supporters of the winning candidate following the election (Anderson et al., 2005; Craig et al., 2006). However, the problem with cross-sectional studies is that they do not allow for the measure of *changes* in attitudes from before an election to after. Panel studies, in which the same participants are interviewed both before and after an election, are best able to represent the causal effects of real world wins and losses on the perceived legitimacy of the electoral process (see Esaiasson, 2011).

With panel evidence, researchers know how much each individual winner or loser has changed from pre to post election. To the extent that unrelated outside events affect levels of perceived legitimacy in both groups, differential change over time can still be attributed to winning versus losing. Based on panel data, winning versus losing in the 1972 and 1996 U.S. presidential elections strongly predicted post-election trust in government, after controlling for pre-election levels of trust (Anderson and LoTempio, 2002). Similarly, winning and losing predicted changes in trust in the electoral process, satisfaction with democracy, and trust in government in panel data from numerous other western democracies, including Britain, New Zealand, Germany, Canada, and Sweden (Anderson et al., 2005; Dahlberg and Linde, 2015; Banducci and Karp, 2003; Blais and Gélineau, 2007; Esaiasson, 2011; Singh et al., 2012).

Why do winners become more trusting and losers less trusting following an election? The need for cognitive consistency among citizens may provide an explanation for this phenomenon (e.g. Anderson et al., 2005; Dinas, 2014). Cognitive consistency theory holds that individuals attempt maintain consistency among their cognitions (Festinger, 1957). A disliked electoral outcome, in this view, is roughly equivalent to the "forced compliance" conditions of classic cognitive dissonance experiments (Festinger and Carlsmith, 1959), in which individuals have no direct control over an undesirable outcome but must nonetheless accept that outcome. In order to eliminate the dissonance in the electoral setting, citizens could switch their preferences to the candidate who won. However, given that a losing citizen still remembers voting for the loser, this change in preferences may be less than convincing. Losers are therefore left to blame an untrustworthy electoral process or the incompetence of fellow voters as a means of lessening the dissonance created by the discrepancy between preferred and actual outcomes.

The cognitive dissonance produced by voting for a losing candidate—and the need to lessen that dissonance by pointing to alternative explanations for the result—should only be enhanced by increased investment in the outcome. An individual who has an especially strong candidate preference or an unusual level of personal commitment to an issue position may have greater difficulty seeing how their side could have lost among the public at large. Individuals who only encounter politically like-minded citizens in their daily lives are known to have trouble recognizing legitimate arguments for the other side (Mutz, 2006). Similarly, strongly invested individuals should be more likely to resort to delegitimizing explanations for an unfavorable outcome.

2. Investing in the outcome

Factors such as the strength of partisan identification, ideological similarity to winning parties, and the degree of ideological agreement with those elected to power can all moderate a citizen's satisfaction with democracy and related attitudes following a favorable or unfavorable election (Anderson et al., 2005; Curini et al., 2012; Singh et al., 2012). While some studies suggest that the effects of these variables are inconsistent depending upon the outcome variable of interest or the specific national context (Anderson et al., 2005; Singh et al., 2011), the available evidence indicates that strength of attachment to the winning or losing side tends to enhance or amplify the more general effects of an electoral result. For example, a strong partisan identifier is likely to experience a steeper decrease in support for the political system when his preferred party loses a national election than a weak partisan identifier on the same side of the election.

Ideological proximity to the parties can also play a key role in determining the strength of the central winner/loser effect (Campbell, 2015). So can attention to partisan news media during the election campaign (Lelkes, 2016; Daniller et al., 2013; but cf. Hollander, 2014). Work on partisan media has focused on the effects of messages on perceptions of legitimacy. However, much like

[1] Unfortunately, the 2008 NAES did not include a standard question asking respondents about their overall satisfaction with democracy in the United States as has been used in many previous studies of the winner-loser gap. As a result, I am unable to directly run a parallel analysis using satisfaction with democracy as an alternative dependent variable. However, Daniller and Mutz (2014) find a great deal of overlap between satisfaction with democracy and perceptions of electoral legitimacy in their analysis of the asymmetry of winning and losing. These results, which rely on 2012 re-interviews of 2008 NAES respondents but incorporate additional measures of legitimacy, suggest that perceptions of electoral legitimacy fits quite well among other dependent variables addressed by the winner/loser literature.

ideological proximity, attention to like-minded partisan news media may well be representative of investment in the party's performance.

Recent work suggests that there is also an emotional component to the experience of losing. Pierce et al. (2016) conducted a daily survey in 2012 and 2013 in which they repeatedly asked respondents how happy they were on the day of their interview. Using a regression discontinuity design, the authors were able to estimate the emotional impact of various national and local events on a number of relevant groups. Supporters of the losing candidate in the 2012 presidential election experienced a sharp drop in happiness immediately following the election, and this drop was notably large in comparison to the effects associated with the other examined events (Pierce et al., 2016). For example, Mitt Romney's loss in the election had roughly double the negative emotional impact on Romney supporters that the Boston marathon bombing had on Boston residents several months later. This emotional reaction to electoral outcomes may well play a role in evaluations of legitimacy.

Participation has also been found in the past to boost both winners' and losers' satisfaction with the democratic system (Nadeau and Blais, 1993). Indeed, this benefit of participation is closely associated with the finding that participation can enhance individual feelings of efficacy (Finkel, 1985, 1987). However, the moderating effects of participation on the relationship between winning or losing and system support has only specifically been tested in the limited circumstances of a single Canadian election. In the current American political environment, political elites are highly polarized (Hetherington, 2001; Layman et al., 2006), and citizens are arguably similarly polarized, or at the very least have become much more consistently sorted into parties by ideology and policy preferences (Abramowitz and Saunders, 1998, 2008; Iyengar et al., 2012; Levendusky, 2009).

In such an environment participation is unlikely to have a uniformly positive effect. Instead, citizens who devote their time, energy, or money to a highly contentious political contest only to see their efforts fail may very well become more disappointed by the process than had they remained on the sidelines. This is particularly true when we consider perceptions of the electoral process as the key variable of interest. The electoral process itself is more likely to be viewed as flawed when citizens become more directly involved with that process yet are displeased with the outcome.

As a result, I expect that factors such as participation and emotional attachment to a party or candidate will have very similar roles in shaping citizens' reactions to an electoral win or loss. I argue that these factors reflect different pieces of a single concept: a citizen's level of *investment* in the election outcome. A citizen who has a strong policy preference between two parties, a strong affective preference for a candidate, or a distinct ideological outlook has a greater vested interest in the outcome. Similarly, a citizen who donates to a campaign or attempts to persuade others to vote for a candidate increases their personal stake in the results. Following the terminology used by Anderson and colleagues (Anderson et al., 2005, p. 74), I predict that investment will *amplify* the effects of winning or losing. This prediction serves as the first formal hypothesis for the present study.

H1. *Investment in the election outcome amplifies the effects of winning and losing on perceptions of electoral legitimacy.*

Amplification suggests that a winner who has a higher level of investment in the election will experience an even greater increase in perceptions of electoral legitimacy than they otherwise would have experienced. Similarly, a loser who is more strongly invested will experience an even sharper decrease in perceptions of electoral legitimacy than an otherwise similar loser who exhibited less investment in the election.

While the central hypothesis concerns the general effects of investment, I also seek to confirm that specific types of investment amplify the effects of winning and losing. If the components of the concept I term investment behave quite differently from one another, the concept of investment would hold little value. I identify three distinct types of investment that I am able to study using the 2008 NAES panel survey. First, *emotional investment* refers to a voter's affective attachment to one candidate and affective distance from the other candidate. A voter who felt a strong emotional connection to Republican John McCain in the 2008 presidential election and an intense dislike of Democrat Barack Obama would have been high in emotional investment.

H2. *Emotional investment in the election outcome amplifies the effects of winning and losing.*

Secondly, *policy investment* refers to a voter's policy preferences in relation to the candidates. A voter who agreed with John McCain and Barack Obama in equal measure on the major issues contested in the campaign would have been quite low in policy investment. With this hypothesis, I expand upon previous work showing that the strength of ideological overlap with a winning party can amplify winner and loser effects (Singh et al., 2012; Campbell, 2015). While past studies have shown that a close identification with a party has an effect, here I propose to examine whether agreement on specific issues of public policy drives changes in perceptions of legitimacy.

H3. *Policy investment in the election outcome amplifies the effects of winning and losing.*

Finally, *participatory investment* refers to a voter's commitment of time, energy, and even money to the campaign. A voter who displayed pro-Obama signs on her lawn, attempted to persuade her friends and neighbors to vote for Obama, and donated money to Obama's campaign would have been high in participatory investment.

H4. *Participatory investment in the election outcome amplifies the effects of winning and losing.*

In each case, I expect that the effects of one type of investment will remain significant even while controlling for the other forms of investment.

3. Data and methods

Data for this study came from the online component of the 2008 National Annenberg Election Survey (NAES).[2] The online component of the NAES was a five-wave panel study, with initial interviews for the first wave beginning in late 2007 and the final, post-election survey wave concluding in early 2009. For present purposes, I am interested in changes in respondents' attitudes that occurred as a result of the general election in November. I therefore draw primarily upon data collected in the immediate pre-election wave, with interviews conducted between the end of August and Election Day (November 4, 2008), and data collected in the post-election wave, with interviews conducted between November 5, 2008 and January 31, 2009. GfK, formerly known as Knowledge Networks, conducted the online interviews for all waves of the panel. GfK conducts surveys online with probability samples initially recruited using random digit dialing combined with

[2] All data from the online component of the 2008 NAES, as well as detailed methodological information, is available at https://services.annenbergpublicpolicycenter.org/naes08/online/index.html.

address-based sampling. Selected households that lacked internet were given free internet access upon agreeing to join the Knowledge Networks panel.[3]

To measure *perceptions of electoral legitimacy*, I use an index comprised of four items in the 2008 panel. Respondents were asked whether elections make government listen to the people; whether parties make government listen to the people; whether the best candidates or those with the most money tend to win elections; and whether or not elections are generally conducted fairly in the United States (see Appendix A for complete question wording). Each item was recoded to a 0–1 scale so that each contributed equally to the overall index, with 1 indicating the highest amount of confidence in the electoral system. The four-item index produced a Cronbach's alpha of 0.70 for the post-election wave of the survey.[4]

My analysis is focused on the effects of investment in the election outcome among winners and losers. In order to identify panel respondents as winners and losers, I used pre-election vote preference as reported in the pre-general election wave of the NAES. Specifically, respondents who said that they preferred Barack Obama, the eventual winner of the election, were coded as winners while those who preferred John McCain or a third party candidate were coded as losers. While there are some advantages to using post-election reported vote choice to categorize winners and losers, using the pre-election preferences ensures that respondents' choices were not potentially tainted by knowledge of the election outcome.[5] Additionally, the agreement between pre-election preferences and post-election reported voting behavior is quite high in this dataset: among those who reported voting in the post-election wave, 95.0% of pre-election McCain supporters subsequently reported voting for McCain and 97.9% of pre-election Obama supporters subsequently reported voting for Obama.[6]

The hypotheses refer to three different types of investment: Emotional investment, policy investment, and participatory investment. To measure *emotional investment*, I use a pair of pre-election feeling thermometer items in which respondents were asked to rate how warmly they felt toward each of the two major party candidates on a scale from 0 to 100. For each respondent, I subtracted the rating of McCain from the rating of Obama to produce a measure of distance between affect towards the two candidates. I then took the absolute value of this distance measure, producing a single scale ranging from 0 to 100 where 0 indicates identical affect towards the two candidates and 100 indicates the greatest possible difference in evaluations, a measure that has also been used to describe affective polarization.

To measure *policy investment* in the election outcome, I incorporated a series of nine pairs of issue questions from the pre-election wave of the survey. For each pair of questions, a respondent was first asked to name any candidates who had similar views to their own on a specific policy question and then asked to name any candidates who had unacceptable views on the same policy question. Importantly, this approach measures perceived policy agreement with the candidates, as opposed to incorporating the candidates' actual stances on the policy issues. The issues included were economic policy, taxes, trade, health care, the war in Iraq, anti-terrorism policy, immigration, abortion, and gay marriage.

I produced an index of these items by calculating the number of times a respondent named each of the two major party nominees in a positive light and the number of times a respondent named each of the nominees in a negative light, producing a scale ranging from -18 to 18 where -18 indicated absolute policy agreement with John McCain and absolute disagreement with Barack Obama, and 18 indicated absolute agreement with Obama and absolute disagreement with McCain.[7] Once again, I took the absolute value of this scale in order to produce a measure of the degree to which an individual had a policy investment in the election's outcome.

Finally, I measured *participatory investment* using a standard series of items related to participation in the election campaign. The post-election wave of the survey asked participants whether they had told others which candidate to vote for in the election; given money to a campaign; worked for a campaign; attended a political meeting; or displayed a campaign sign or poster. As in other studies of political participation, these items were highly correlated, with a Cronbach's alpha for all five items of 0.74. I coded each participation item as a dummy variable and then took the mean of the five items, producing a participatory investment scale ranging from 0 to 1. Table 1 presents summary statistics for each measure of investment.

All three types of investment are measured at a single point in times, as I am interested in whether different levels of investment produce different rates of change in perceptions of legitimacy (and not in whether changes in investment over time produce changes in perceptions). Importantly, both of the attitudinal measures of investment are taken from the pre-election survey. If issue agreement or affective attitudes towards the candidates were measured after the election, the results could potentially be affected by respondents' knowledge of the outcome. Just as with reported candidate preference, an individual respondent might have become more positively disposed towards Barack Obama—or simply reported a more favorable attitude towards Obama—once they already knew that he was the winner. Participation, on the other hand, was only measured in the post-election survey, and so I rely on the post-election measure of participation.

Because the available data allows me to study within-person changes in attitudes over time, I use linear fixed effects regression models for all of the key analyses of the data. This technique compares individuals to themselves at previous points in time while taking into account over-time dependencies among measures. I treated *wave of interview* (coded as a dummy variable to represent pre-versus post-election) as a key dependent variable

[3] For a full discussion of the NAES 2008 panel response rates, see http://www.annenbergpublicpolicycenter.org/Downloads/NAES/OnlineSurvey/NAES08-Online-Codebook.pdf. The percentage of Wave 1 cases who completed all 5 waves was 54.6 percent. The average cumulative response rate CUMRR1 across the 5 waves was 8.92 percent. See Chang and Krosnick (2009) for a comparison of sample representativeness and response quality in RDD telephone interviewing, Internet surveys using probability samples such as this one, and Internet surveys using non-probability samples.

[4] To test whether one question might have been driving the results reported below, I ran a series of additional regression models in which each of the four items was separately treated as the dependent variable of interest in place of the four-item scale. Investment proved to be a significant predictor of changes in responses to each question individually as well as a significant predictor of changes in the combined scale (see Online Appendix).

[5] See Anderson et al., 2005, 33–35 and Table 3.1, for a detailed discussion of the advantages and disadvantages of using pre-election preferences vs. post-election reported vote choice to determine winners and losers. Anderson et al. conclude that the difference between the two measures is quite small. Their analysis shows a very high degree of overlap between the two measures in Eurobarometer surveys, similar to what I find here in the 2008 NAES data.

[6] As is implied by the substantial overlap in self-reports, using post-election preferences to identify winners and losers does not produce any changes to the substantive results described in the subsequent analysis. (Detailed results available from the author upon request).

[7] Algebraically, this scale was constructed so that $PI = (O_p + M_n) - (O_n + M_p)$, where PI is Policy Investment, O_p is positive mentions of Obama, M_n is negative mentions of McCain, O_n is negative mentions of Obama, and M_p is positive mentions of McCain. In other words, a hypothetical respondent who expressed agreement with Obama on 5 issues, disagreement with Obama on 1 issue, agreement with McCain on 2 issues, and disagreement with McCain on 3 issues would receive a score of $(5+3) - (1+2) = 5$, indicating a relatively low level of policy investment in an Obama victory.

Table 1
Summary statistics for measures of investment.

	Winners n = 3769	Losers n = 3990	All voters n = 7759
Emotional investment			
Mean	49.99	41.43	45.59
Standard deviation	24.96	24.58	25.13
Range			0–100
Policy investment			
Mean	8.92	8.99	8.96
Standard deviation	4.90	5.16	5.04
Range			0–18
Participatory investment			
Mean	0.27	0.21	0.24
Standard deviation	0.29	0.24	0.27
Range			0–1
Investment index			
Mean	0.20	0.03	0.11
Standard deviation	0.76	0.71	0.74
Range			−1.31 to 2.30

Note: Emotional investment is the absolute value of the difference between feeling thermometer ratings of the two major party candidates. Policy investment is the absolute value of the difference between issue agreement with each of the two major party candidates on a series of nine policy issues. Participatory investment is the number of actions taken as reported in a series of five participation items. Investment index is the mean of standardized scores on the other three measures of investment (Cronbach's alpha = 0.70).

that allows me to analyze the effect of time. To the extent that winners and losers changed differentially in Electoral Legitimacy from pre-to post-election, we should see a significant interaction between wave of interview and *winner versus loser status*.

Change that occurs across all groups is represented in this model by the main effects of wave (pre to post election). Stable pre-existing group differences between winners and losers are indicated by the main effect of *status* (a between-subjects factor). Although political scientists have tended to use lagged dependent variable models for analyzing panel data, the change score approach is preferable for studying change over time as an outcome because it tests for actual change rather than for the stability of individual differences as in correlational approaches (see Allison, 1990; Allison, 2009).

Because each individual is compared to himself or herself over time, this fixed effects approach eliminates the need to control for stable individual differences such as standard demographic variables or other personal traits as predictors of change over time as these variables are commonly presented in analyses of cross-sectional data; a stable characteristic obviously cannot produce change by itself. However, I do introduce standard demographic variables interacted with Wave into the models in order to test whether different groups may have changed differentially over time and whether this might account for some of the apparent effects of investment.

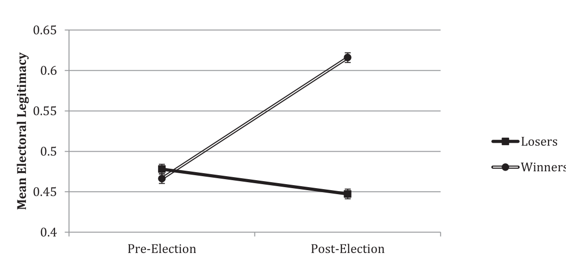
The fact that groups defined by stable characteristics may change at different rates over time provides the leverage needed to test my key hypotheses. As noted earlier, my hypotheses predict that individuals with varying levels of investment will experience different rates of change in perceptions of legitimacy, even after accounting for the main winner/loser effect. To test these hypotheses, I introduce the variables representing investment into the fixed effects models as time-invariant variables that are interacted with time. If winners with high levels of investment experienced greater increases in perceptions of legitimacy than winners with low levels of investment, we should see a statistically significant and positive three-way interaction between *time*, *winner vs. loser status*, and *investment*.

4. Results

I begin by examining whether winners and losers in the 2008 presidential election changed differentially from pre-to post-election in the extent to which they perceived the electoral process to be legitimate. This analysis replicates previous findings of the winner-loser gap, though with the benefit of using panel rather than cross-sectional data. It also serves as a baseline from which we can analyze the specific effects of investment. Although I present figures that show aggregate means to illustrate the findings, all statistical analyses were conducted at the individual level.

Fig. 1 illustrates the effects of Barack Obama's victory on perceptions of electoral legitimacy among winners and losers. Partisans on both sides entered the election with quite similar perceptions of legitimacy. However, winners experienced a sharp increase in electoral legitimacy after the election while losers experienced a much more modest but still notable decline. As the key independent variables of wave and winner vs. loser status are both dichotomous, I tested the significance of this effect using a mixed model analysis of variance, where wave was treated as a within-subjects repeated measure and status was a between-subjects measure. The interaction between these two variables is statistically significant ($F = 2229.20$; $p < 0.001$), confirming that winners and losers reacted to the election quite differently in terms of their perceptions of electoral legitimacy.

What effect, if any, did investment in the election outcome have for this general pattern of satisfied winners and dissatisfied losers? Before answering that question, it is necessary to consider whether the three measures of investment do, in fact, capture distinct types of investment. If a voter who felt a strong affective attachment to



Note: Error bars indicate 95% confidence intervals.

Fig. 1. Effect of 2008 presidential election outcome on perceived electoral legitimacy. Note: Error bars indicate 95% confidence intervals.

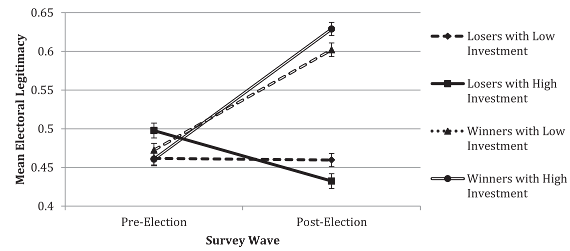
McCain and a great dislike for Obama was also highly likely to agree with McCain on almost every issue and disagree with Obama on almost every issue while participating quite actively in order to help ensure his preferred candidate won, the measures would clearly lack discriminant validity. To help demonstrate that the different types of investment I describe should be considered separately, I first present a bivariate correlation matrix for these three measures of investment, each standardized for ease of comparison, in Table 2. As the bivariate correlations make clear, each of the three variables is positively related to the other two. However, none of the three are so closely related as to suggest that the measures lack discriminant validity.

While distinct, the three types of investment are closely enough related to produce a single reliable index of investment. I calculated each respondent's mean score across the standardized versions of the emotional, policy, and participatory scales (Cronbach's alpha = 0.70) to produce an overall *investment index*. I begin the analysis of the effects of investment using this investment index to first demonstrate that high degrees of generalized investment in the outcome are associated with greater gains in perceived legitimacy among winners and more extreme losses among losers. I then consider each type of investment separately in order to test each of the remaining hypotheses.

I hypothesized that winners who were heavily invested in an election outcome would experience sharper increases in perceived electoral legitimacy than winners who were less invested. Likewise, I predicted that losers who were heavily invested in an outcome would experience more severe decreases in perceived electoral legitimacy than their less invested co-partisans. The analysis provides strong evidence supporting both predictions. To illustrate the basic effect of investment, I subdivided the winners and losers into two additional groups, those with high levels of investment and those with low levels of investment, based on the mean value of the investment index. Changes in perceptions of electoral legitimacy from pre-to post-election are shown for all four groups in Fig. 2.

Fig. 2 shows precisely the pattern the first hypothesis predicted. Among winners, those with relatively high levels of investment experienced a sharper increase in perceptions of electoral legitimacy than those with relatively low levels of investment. Among losers, those with higher levels of investment experienced a notable decrease in perceptions of electoral legitimacy while those with lower levels of investment displayed hardly any change at all as a result of the election outcome.

Fig. 2 provides initial support for my predictions, but a more rigorous test is required. I therefore turn to a linear fixed effects regression model, a technique that discards all between-person variation in order to study only within-person variation over time. Because I treat investment and winner vs. loser status as variables that remain stable for each individual in the analysis, I am interested in whether these two variables produce significant effects when they interact with time, represented here as survey wave. The first column of Table 3 presents the results of the initial fixed effects regression analysis, in which I examine the effect of investment through the investment index.



Note: Error bars indicate 95% confidence intervals.

Fig. 2. Effect of investment in election outcome on perceived electoral legitimacy. Note: Error bars indicate 95% confidence intervals.

Table 3
The impact of investment on changes in perceptions of electoral legitimacy.

	(1) Coeff.	(2) Coeff.
Wave	−0.029*** (0.003)	−0.001 (0.012)
Winner × Wave	0.172*** (0.004)	0.169*** (0.004)
Investment index × Wave	−0.056*** (0.004)	−0.055*** (0.004)
Winner × Investment index × Wave	0.089*** (0.006)	0.088*** (0.006)
Female × Wave		0.004 (0.004)
Non-white × Wave		0.019*** (0.006)
Age × Wave		0.000 (0.000)
Education × Wave		−0.002 (0.001)
Income × Wave		−0.001 (0.001)
Constant	0.472*** (0.001)	0.472*** (0.001)
n	7759	7759

Note: Table reports unstandardized coefficients from linear fixed effects models with standard errors in parentheses. The dependent variable is Perceptions of Electoral Legitimacy. Column 1 presents regression coefficients for the model including only the key independent variables of interest while Column 2 presents coefficients for the model in which demographic control variables are also interacted with time.
*p < 0.05, **p < 0.01, ***p < 0.001.

The regression model shows that the interactions between time and winner vs. loser status and between time and the investment index are statistically significant at all conventional levels of significance. The three-way interaction between time, investment, and vote preference is significant, as well, indicating that winners who were high in investment changed at a different rate than losers who were high in investment. Moreover, the signs of the coefficients confirm that investment had the predicted effects. Among those who did not support the winning candidate, increased investment resulted in a greater loss of perceived electoral legitimacy following the election, as represented by the coefficient for the two-way interaction between investment and time. However, among winners, as represented in the three-way interaction between investment, time, and the dummy variable for status as a winner, increased investment predicted a greater increase in perceived electoral legitimacy. As a result, there is strong evidence supporting the hypothesis that the effects of winning or losing on

Table 2
Bivariate correlations for measures of emotional investment, policy investment, and participatory investment.

	Emotional Investment	Policy Investment	Participatory Investment
Emotional Investment			
Policy Investment	.582**		
Participatory Investment	.317**	.418**	

Note: Cell entries are bivariate Pearson correlations between standardized variables.
**p < .01

perceptions of electoral legitimacy are amplified by investment in the election's outcome.

Column 2 presents a second version of this model in which I interact each of the demographic control variables of gender, race, age, education, and income with wave. The interpretation of the coefficients associated with these control variables is somewhat different than in a model testing correlations using cross-sectional data. Here, I am testing whether groups such as females or non-whites changed over time at different rates than males or whites. The important question for my purposes is whether these additional variables account for the changes that I previously attributed to the key independent variables of voter preference and investment. Column 2 demonstrates that they do not. All three of the interactions between Wave, Winner vs. Loser Status, and Investment Index remain statistically significant at all conventional levels of significance, and the magnitudes of the coefficients associated with these interactions decrease only slightly in each case. This serves as further evidence in support of the central hypothesis.

I also sought to test whether emotional investment, policy investment, and participatory investment play distinct roles in moderating the effects of winning and losing and whether the effects of investment differ among winners and losers. To address these questions systematically, I removed the investment index from the statistically model and instead analyzed the effects of each type of investment as a distinct component. Once again, I used fixed effects regression to analyze the changes in individuals' attitudes over time. Table 4 displays the results of a fixed effects model in which emotional investment, policy investment, and participatory investment are each interacted separately with wave and winner vs. loser status. The results of this model indicate that all three types of investment are statistically significant. Once again, the coefficients indicate that a loser who was highly invested in the outcome along one of the three dimensions of investment experienced a greater loss of perceived electoral legitimacy than a loser who was not as deeply invested. Investment had the inverse effect among winners, further increasing the gain in perceived electoral legitimacy.

This result offers initial support for my second, third and fourth hypotheses. However, might it be the case that some types of investment amplify the effects of losing but not of winning (or of winning but not of losing)? The interaction terms alone can't answer this question. I next divided respondents between losers and winners in order to examine the two groups separately. Analyzing losers separately from winners and vice versa allowed me to specifically test whether having a high degree of each type of investment produced differential changes in perceptions of electoral legitimacy among members of each electoral group. Additionally, dividing the analysis avoids the three-way interactions seen in the earlier regression models. This greatly increases the ease of interpreting the coefficients produced by the fixed effects models. Table 5 presents the results of a final set of fixed effects regressions in which I analyzed losers and winners as distinct groups.

The first column of Table 5 presents the results of the fixed effects regression of perceptions of electoral legitimacy on emotional, policy, and participatory investment among losers. These results are consistent with my earlier conclusions. The interaction between wave and investment is negative and statistically significant for all three types of investment. Voters in 2008 who supported a losing candidate tended to experience a decrease in confidence that the election was conducted fairly. If a loser was more invested in the election outcome, either emotionally, due to policy preferences, or through active participation in the campaign, this effect was more severe. Importantly, the effect of each type of investment remains significant even though the linear fixed effects model simultaneously controls for the other two types of investment.

The third column reports the parallel analysis for voters who were on the winning side of the election. Here, the interaction between wave and emotional investment is statistically significant and the relationship is as predicted. Obama supporters who had a strong emotional investment in the outcome experienced a significantly larger gain in perceptions of electoral legitimacy than Obama supporters who were less emotionally invested. However, I found no statistical evidence of significant effects of policy or participatory investment among winners. An Obama supporter who was extremely active in the campaign was no more likely to experience an improvement in his or her perceptions of the process than a similar supporter who had little active engagement beyond voting on Election Day. This suggests strong support for my second hypothesis, but only partial support for the third and fourth hypotheses. Emotional investment had an amplifying effect on perceptions of electoral legitimacy for both winners and losers in the 2008 election. However, the data supports the conclusion that policy investment and participatory investment had significant amplifying effects only when I considered electoral losers separately from winners.

Table 4
The impact of different types of investment on changes in perceptions of electoral legitimacy.

	(1) Coeff.	(2) Coeff.
Wave	0.045*** (0.006)	0.061*** (0.013)
Winner × Wave	0.035*** (0.009)	0.035*** (0.009)
Emotional investment × Wave	−0.001*** (0.000)	−0.001*** (0.000)
Winner × Emotional investment × Wave	0.002*** (0.000)	0.002*** (0.000)
Policy investment × Wave	−0.003*** (0.001)	−0.003*** (0.001)
Winner × Policy investment × Wave	0.004*** (0.001)	0.004*** (0.001)
Participatory investment × Wave	−0.067*** (0.012)	−0.065*** (0.012)
Winner × Participatory investment × Wave	0.051** (0.017)	0.052** (0.017)
Female × Wave		0.003 (0.004)
Non-white × Wave		0.013* (0.006)
Age × Wave		0.000 (0.000)
Education × Wave		−0.001 (0.001)
Income × Wave		−0.001 (0.001)
Constant	0.472*** (0.001)	0.472*** (0.001)
n	7759	7759

Note: Table reports unstandardized coefficients from linear fixed effects models with standard errors in parentheses. The dependent variable is Perceptions of Electoral Legitimacy.
*p < 0.05, **p < 0.01, ***p < 0.001.

Table 5
Differential effects of investment on changes in perceptions of electoral legitimacy among winners and losers.

	(1) Losers coeff.	(2) Losers coeff.	(3) Winners coeff.	(4) Winners coeff.
Wave	0.045*** (0.006)	0.060** (0.019)	0.080*** (0.007)	0.098*** (0.018)
Emotional investment × Wave	−0.001*** (0.000)	−0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Policy investment × Wave	−0.003*** (0.001)	−0.003*** (0.001)	0.001 (0.001)	0.001 (0.001)
Participatory investment × Wave	−0.067*** (0.012)	−0.066*** (0.013)	−0.016 (0.011)	−0.012 (0.011)
Female × Wave		−0.005 (0.006)		0.011 (0.006)
Non-white × Wave		0.007 (0.011)		0.016* (0.007)
Age × Wave		0.000 (0.000)		0.000 (0.000)
Education × Wave		0.000 (0.002)		−0.002 (0.002)
Income × Wave		−0.001 (0.001)		−0.001 (0.001)
Constant	0.478*** (0.002)	0.478*** (0.002)	0.466*** (0.002)	0.466*** (0.002)
n	3990	3990	3769	3769

Note: Table reports unstandardized coefficients from linear fixed effects models with standard errors in parentheses. The dependent variable is Perceptions of Electoral Legitimacy. Column 1 presents regression coefficients for the model including only supporters of the losing candidates while Column 2 presents coefficients for the model including only supporters of the winning candidate.
*p < 0.05, **p < 0.01, ***p < 0.001.

5. Discussion

These findings strongly suggest that individual investment in an election outcome can play a key role in shaping subsequent satisfaction with the electoral process. A voter who feels a strong emotional attachment to a candidate, holds policy views that closely align with one side, or participates actively in the campaign is likely to experience a more severe disappointment if the preferred candidate loses. More importantly, this disappointment translates to decreased perceptions of electoral legitimacy.

The results are particularly important in light of the previous over-reliance on cross-sectional data in studying the winner-loser gap. Cross-sectional post-election data cannot tell us anything about individuals' attitudes towards the electoral process before an election. As a result, studies using this type of data are poorly suited to explaining why some winners (or losers) might change differentially from other winners (or losers) in response to a given outcome. When panel data has been used to study the winner-loser gap, the focus has tended towards estimating the size of the gap or analyzing structural factors that affect it (e.g. Esaiasson, 2011; Anderson and LoTempio, 2002). Fewer studies to date have used panel data to test the influence of individual-level characteristics on differentially changing attitudes from pre-election to post-election.

The panel data I employ in this analysis is particularly well suited to testing the study's hypotheses. Nonetheless, this approach does have certain limitations. My statistical model allows me to control for all stable individual differences, ruling out the vast majority of spurious associations that might have affected winners' and losers' perceptions of electoral legitimacy. However, it is always possible that some event or events during the period of the panel survey aside from the election may have caused winners' and losers' attitudes to change differentially. In the event that I failed to recognize an external event that may have affected the two groups differently, the model would fail to account for this interaction.

The analysis is also limited by the ability to generalize to other elections. No two elections are identical, and it is certainly possible that the role of investment could be different in a different context. In fact, the 2008 election could very well be seen as an outlier due to its outsized historical role as the first American presidential election in which a major party nominated an African-American candidate. The fact that the dummy variable for non-whites was the only demographic control variable to reach statistical significance when interacted with time in the regression models indicates that members of racial minority groups increased in perceptions of electoral legitimacy following Barack Obama's election even after controlling for winner vs. loser status. By including this interaction in the models I controlled for the role of race in my tests of the impact of investment in the 2008 election. However, I am unable to say with certainty that investment would play precisely the same role in the context of a different presidential election.

The importance of an election's context also has significant implications for the central finding that policy and participatory investment amplified the effect of the election for losers but not for winners. Other work on electoral losers and winners has shown that the effects of winning and losing are part of a dynamic process, with past election results playing a significant role in determining the effects of the most recent election (Anderson et al., 2005; Chang et al., 2014; Curini et al., 2012; Moehler and Lindberg, 2009).

Obama's victory in 2008 appears to have been particularly salient for winners due to the fact that Democrats won the White House after two election cycles of Republican presidential victories (Daniller and Mutz, 2014). As a result, investment may have played less of a marginal role for winners. In other words, there may be something approximating a ceiling effect at work in this election: all Obama supporters may have gained so much from his 2008 victory as a result of taking the White House away from a disliked incumbent that individual-level investment played only a very small marginal role in increasing perceptions of legitimacy among the most invested. It is quite possible that in an analysis of the 2012 election, when Obama supporters as a whole benefited less from his second consecutive victory, the impacts of policy and participatory investment would prove significant.

My findings regarding the role of investment for electoral losers, on the other hand, are quite clear. John McCain's strongest supporters experienced the greatest decreases in perceptions of legitimacy. It is perhaps logical that an individual with a strong emotional connection to a candidate would have trouble seeing how the opposing candidate could have legitimately received more votes. However, the long-term health of democracy requires that citizens move beyond this immediate reaction and regain their trust in the process. If citizens with strong policy preferences lose faith in the process when their preferred policies are rejected, will they seek out extra-legal means of enacting those policies?

Even more frustrating for proponents of widespread participation is the finding that citizens who spend the most time campaigning for a preferred candidate are the ones who become most deeply disappointed when that candidate loses. Ideally, we would be able to test whether an individual who participated heavily in one election and lost trust in the process as a result of the outcome became less likely to participate in the next election. Unfortunately, panel studies that track the same individuals across multiple election cycles are exceedingly rare. However, this question represents an important opportunity for future work.

Should we discourage citizens from becoming too invested in election campaigns for fear that when they experience a loss they will lose confidence in the system itself? This approach would seemingly throw the baby out with the bath water. Alternatively, should we take steps to limit the competitiveness of American elections so as to limit the number of individuals who find themselves on the losing side of any given contest, as Brunell (2008) has suggested? Unfortunately, it is simply not possible to redistrict to minimize competition at the presidential level, so this approach is unable address the most visible election in American politics.

These results instead speak to the need for regular alternations of the party in power. Fortunately, in the American system, the two major parties have alternated power quite regularly in the modern era, with neither parties holding the White House for more than three consecutive terms in over sixty years. When both sides have the opportunity to win and to lose over time, the most invested citizens will inevitably suffer some defeats that lower confidence and trust. However, later victories should help to reverse the effects of earlier defeats. Trust in democracy requires not only that hope springs eternal, but that those hopes are often met.

Appendix A. Question wording and scale construction

Perceptions of electoral legitimacy

The main dependent variable, perceptions of electoral legitimacy, is constructed from four items included in the pre-election and post-election waves of the 2008 NAES:

1) How much do you feel that having elections makes the government pay attention to what the people think: a good deal, some, or not much?

[A good deal, Some, Not much]

2) How much do you feel that political parties help to make the government pay attention to what the people think: a good deal, some, or not much?

[A good deal, Some, Not much]

3) In general, do you think the best candidates win the elections, or is it just the candidates who raise the most money that get elected, or something in between?

[Best candidates win, Candidates who raise the most money win, Something in between]

4) In some countries, people believe their elections are conducted fairly. In other countries, people believe that their elections are conducted unfairly. Do you believe presidential elections in the United States are generally...

[Very fair, Somewhat fair Neither fair nor unfair, Somewhat unfair, Very unfair]

These four items were recoded such that higher values indicated greater perceived legitimacy and then standardized and averaged to create a single scale. The four-item scale produced a Cronbach's alpha of 0.70 for the post-election wave.

Emotional investment

The measure of emotional investment in the election outcome is based on a pair of feeling thermometer items included in the pre-election survey. These questions were phrased as follows:

Please rate the following person on a thermometer that runs from 0 to 100°: [John McCain/Barack Obama]. Rating above 50 means that you feel favorable and warm toward the person. Rating below 50 means that you feel unfavorable and cool toward the person.

[Show response scale as thermometer from 0 to 100.]

Policy investment

The measure of policy investment is based on nine pairs of issue items. For each issue item, respondents were asked to name any candidates whose views they approved of and any candidate whose views they disapproved of. By the time of the pre-general election wave, which I use here, the only candidates available for respondents to name were the major party nominees. The issue items are listed below.

1. Economic Policy:

Are there any candidates who you think would do a particularly good job of handling the nation's economy? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any candidates who you think would do a particularly bad job of handling the nation's economy? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

2. Tax Policy:

Are there any candidates who you think would do a particularly good job of handling taxes? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any candidates who you think would do a particularly bad job of handling taxes? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

3. Trade Policy:

Which presidential candidate's views are most like your own when it comes to trade agreements? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any presidential candidates whose views on trade agreements are unacceptable to you? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

4. Health Care Policy:

Are there any candidates who you think would do a particularly good job of handling the health care situation? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any candidates who you think would do a particularly bad job of handling the health care situation? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

5. Policy on Iraq:

Which presidential candidates' views are most like your own when it comes to a plan for Iraq? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any presidential candidates whose views on Iraq are unacceptable to you? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

6. Homeland Security Policy:

Are there any candidates who you think would do a particularly good job of handling homeland security? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any candidates who you think would do a particularly bad job of handling homeland security? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

7. Immigration Policy:

Which presidential candidate's views are most like your own when it comes to immigration? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any presidential candidates whose views on immigration are unacceptable to you? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

8. Abortion Policy:

Which presidential candidate's views are most like your own when it comes to abortion? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any presidential candidates whose views on abortion are unacceptable to you? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

9. Gay Marriage Policy:

Which presidential candidates' views are most like your own when it comes to gay marriage? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Are there any presidential candidates whose views on gay marriage are unacceptable to you? You can pick more than one candidate if you like, or “don't know enough to say” if you don't feel you know enough about them yet.

Participatory investment

I use a standard five-item scale to measure participation in the election campaign. In this case, I use questions asked in the post-election survey wave in order to capture all participation that occurred during the campaign.

1. In the past 12 months, have you participated in the following activity on behalf of a candidate for elected office: told any people why they should vote for or against a candidate?
2. In the past 12 months, have you participated in the following activity on behalf of a candidate for elected office: given money to a campaign?
3. In the past 12 months, have you participated in the following activity on behalf of a candidate for elected office: worked for a campaign?
4. In the past 12 months, have you participated in the following activity on behalf of a candidate for elected office: gone to a political meeting, speech, dinner, or things like that?
5. In the past 12 months, have you participated in the following activity on behalf of a candidate for elected office: worn campaign buttons, put campaign stickers on your car, or placed a sign in your window or in front of your house?

Investment index

To construct the Investment Index, I standardized each of the three distinct investment scales and then took the mean score across those three standardized variables. The Emotional, Policy, and Participatory Investment scales were reliably correlated with a Cronbach's alpha of 0.70.

Appendix. B. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.electstud.2016.06.013.

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