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UNIVERSITY OF CALIFORNIA, SAN DIEGO

Poverty and the Psychology of Political (In)Action

A dissertation submitted in partial satisfaction of the requirements
for the degree of Doctor of Philosophy

in

Political Science and
International Affairs

by

Elaine Kathryn Denny

Committee in charge:

Professor Emilie Hafner-Burton, Chair
Professor James Fowler
Professor Stephan Haggard
Professor Craig McIntosh
Professor Barbara Walter

2017

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Chair

University of California, San Diego

2017

DEDICATION

To Alicia Garcia and Patricia Garcia: *Presente.*

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ACKNOWLEDGEMENTS

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"Explaining High Murder Rates in Latin America: It's Not Drugs." With Barbara Walter. *Political Violence @ a Glance*: *Expert Analysis on Violence and Its Alternatives*. August 30, 2012. (Blog post with highest traffic, 2012)

ABSTRACT OF THE DISSERTATION

Poverty and the Psychology of Political (In)Action

by

Elaine Kathryn Denny

Doctor of Philosophy
in Political Science and International Affairs

University of California, San Diego, 2017

Professor Emilie Hafner-Burton, Chair

Poor people consistently vote at lower rates than wealthier cohorts in the United States, and globally social movements often are comprised more of middle and upper-class citizens rather than the poor – even when the movement's objectives are specifically socio-

economic. While the poor face more structural barriers to participation, structural barriers alone have been insufficient to explain this participation gap. This dissertation explores how poverty and financial insecurity affect one's participation in politics. I apply lessons from psychology, cognitive science, and behavioral economics to political action, investigating how stress, threat, and loss aversion affect political participation. In my dissertation, I show that scarce resources have measurable consequences for political participation, often by changing how people perceive choices and the bandwidth they have to make decisions.

Using a combination of lab experiments and nationally representative surveys, I find in Chapter 1 that financial stress taxes cognitive bandwidth, driving the Good Intention Gap – the gap between political interest and political action. In Chapter 2, I use geospatial and census data to understand how poor people specifically are affected by Get Out the Vote efforts. Reanalysis of a San Diego field experiment shows which mobilization efforts can overcome the Good Intention Gap by elevating rates of political action among the poor.

Chapters 3 and 4 move beyond absolute levels of wealth to consider how economic volatility affects political mobilization. I integrate scholarship on threat sensitivity and prospect theory to show that political behavior changes when the fear of financial loss is evoked. Chapter 3 uses lab experiments, survey data, and a 2016 case study to demonstrate how conservatives' threat sensitivity extends to the financial domain: raising the specter of personal economic loss mobilizes conservatives but can demobilize liberals. Chapter 4 uses similar methods to show that people who experience economic volatility (rather than consistent poverty) are also mobilized by the threat of financial loss. Furthermore, messages that prime people to think about financial loss increase their perceptions of economic insecurity, mediating the observed effect of loss frames on mobilization.

Chapter 1: The Good Intention Gap – Poverty, Stress, and Political Action

1.1 Abstract

At least 2 in 5 U.S. citizens live in high financial insecurity, leaving them vulnerable to economic shocks and stress. This paper identifies a mechanism linking poverty to turnout. Moving beyond a traditional model of resource scarcity, I show that financial stress influences political behavior by influencing cognition and decision-making. Results provide foundational evidence for a Good Intention Gap in political participation: Poor people want to take political action, but, consistent with stress's broader psychological effects, financial stress taxes the brain's cognitive resources. Taxed mental bandwidth and short-sighted decision-making reduce one's capacity to follow through on intentions to participate.

I show that experimentally-induced financial stress decreases long-term strategic thinking in ways that are increasingly at odds with policy preferences. When political action is easy and immediate, financial stress increases participation due to increased issue salience; however, when action is delayed, financial stress mediates decreased turnout, especially among the poor. Nationally representative data show that financial stress correlates with the Good Intention Gap via a mechanism of forgetting, while competing explanations for lower participation among the poor find little support.

1.2 Introduction

Individuals with scarce resources are often less likely to engage in regular political behavior such as voting (Brady, Verba, and Schlozman 1995), yet the precise mechanisms by which poverty affects political participation have remained unclear. This paper demonstrates the political implications of well-established patterns of cognition, which behavioral economics and psychology have shown affect our decisions. I demonstrate that when stress is induced, finite mental bandwidth influences people's perception of political issues and ultimately their political behavior. Given that 2 in 5 people in the U.S. live paycheck to paycheck, these cognitive patterns – and their political ramifications – are especially salient in situations of scarce resources.

A substantial percentage of the U.S. population experiences financial insecurity: 40% of U.S. citizens say they would have difficulty acquiring $2000 in 30 days (Lusardi, Schneider, and Tufano 2011), and 32% of U.S. citizens saying they lose sleep over their personal finances (Seabrook 2016). Such insecurity makes people more susceptible to unexpected, stress-inducing economic shocks. In behavioral economics and psychology, financial stress has been shown to affect decision-making through altered cognition and time preferences (Haushofer and Fehr 2014; Mullainathan and Shafir 2013). In this paper, I show that stress – particularly financial stress – also has measurable implications for political action.

The research presented here indicates that resources to matter for political participation, but in ways that differ from the traditional resource scarcity model. I propose that financial stress generates a Good Intention Gap: poor people want to participate in politics at levels comparable to wealthier cohorts; however, financial stress saps mental bandwidth needed to follow through on the intention to act, leading to forgetfulness. I use a hybrid of lab and survey experiments to identify the cognitive mechanism driving this Good Intention Gap.

Lab results show that financial stress affects strategic thinking and leads to a divergence between reported preferences and demonstrated behavior. Experimentally inducing financial stress decreases long-term strategic thinking, an effect that mediates political action. Furthermore, under high stress conditions poor people experience a greater cognitive penalty, leading to a divergence in strategic thinking between high and low socio-economic groups.

Survey data from the 2012 ANES and 2014 Census Voting Supplement further illustrate the Good Intention Gap. Well-intentioned non-actors – the respondents who report a high likelihood of voting but then fail to do – are more likely to have characteristics indicative of financial stress: low incomes, high self-reported anxiety, no college degree, and less life satisfaction. Additionally, low income respondents are more likely to cite forgetfulness as the main reason for not voting, supporting the hypothesis that financial stress increases cognitive load and affects one's ability to follow through on intentions to participate.

1.3 Poverty, Stress, and Political Behavior

It has long been stipulated that poverty raises the opportunity costs of political participation and increases the number of daily necessities that compete with political issues for one's attention (Rosenstone 1982). Data clearly show that citizens who regularly participate in politics differ from the general public along key demographic measures, including income level (Verba et al. 1993). Yet, the question remains: Why do limited resources correlate with lower levels of participation? Limitations in time, money, and civic skills have all been implicated in the socio-economic participation gap (Brady, Verba, and

Schlozman 1995), but the precise mechanism by which these factors correlate with participation remains unclear.[1]

While the poor face more structural barriers to participation, structural barriers alone are not sufficient to explain this participation gap. Changing registration laws has had less impact than expected on increasing voter turnout (Highton 2004). In a meta-analysis of studies assessing the effects of early voting, voting by mail, and absentee voting, Berinsky (2005) finds that these electoral reforms designed to decrease voting disparities actually have the opposite effect, widening the participation gap between rich and poor. Such findings suggest that time and financial resources affect political participation through a mechanism distinct from convenience or even access – with distinct policy implications for how to address participation disparities.

This paper addresses the ongoing puzzle of unequal political participation by identifying the role that stress plays in decisions about political action, especially when stress is linked to financial insecurity. It posits that lower participation rates among the poor can be explained at least in part by the effects that financial stress has on the brain. Stressful situations consume a person's finite mental bandwidth. While evolutionarily it was advantageous to direct a disproportionate amount of one's focus to immediate threats or stressors, this "bandwidth tax" also compromises executive functioning in three key areas: impulse control, working memory, mental flexibility (ability to switch between tasks) (Carlock 2011). Furthermore, repeated activation of the stress response can lead to increased sensitivity to stimuli and amplified stress responses in the future: people who grow up in chronically stressful or insecure environments may experience an overactive limbic system,

[1] Furthermore, our understanding of participation has until now been primarily limited to voting behavior, although citizens have the opportunity to engage with politics through a variety of different channels (Leighley 1995).

the part of the brain that triggers reactions to environmental stimuli. When the limbic system sends too many messages of stress or fear to the problem-solving part of the brain (the prefrontal cortex), it becomes harder to make well-considered decisions and modulate behavior (Casey, Hare, and Galván 2011).

Multiple streams of research in neuroscience, cognitive science, and behavioral economics demonstrate how stress and poverty – both independently and conjointly – affect decision-making (Camerer, Loewenstein, and Rabin 2011; Wilson 2011). As financial stress increases, people's attention becomes more fixated on immediate needs, decreasing their ability to pursue long-term strategic interests – even as they consciously acknowledge the importance of future-oriented action. The response to situational stressors is exacerbated in chronic high-stress environments (such as poverty) where people have developed a hypersensitivity to danger or threat. This paper focuses on the effects of financial stress because of its relevance to longstanding questions about political mobilization and participation; however, I expect that the findings presented here should extend to other triggers of stress as well, given that the underlying theory of how stress affects decision-making remains the same.

1.3.1 Stress

In the short term, people who experience financial insecurity are more likely to experience unexpected shocks. The resulting stress activates the limbic system in ways that ramp up emotional responses and affect one's ability to make strategic decisions. Elevated stress also consumes finite mental bandwidth, affecting impulse control, working memory, and mental flexibility – all with implications for decision-making as well. Long term, insecure environments affect one's sensitivity to threat and stress on a neurological level (Roth

and Sweatt 2011), making people more likely to experience stronger cognitive effects in situations of acute, unexpected stress.[2]

Stress affects both one's physiological and cognitive processes (Endler, Edwards, and Vitelli 1991), and the same cognitive processes that once increased one's chances of avoiding danger and finding food have unintended – and even adverse – consequences today. Heightened stress correlates with greater activation of the amygdala, one of the most primitive parts of the brain and one that is linked to threat detection (Li, Chao, and Lee 2009). Physical responses to heightened stress may include perspiration, flushing, increased heart rate, or irregular breathing. Cognitive responses – the primary focus of this paper – can include an inability to concentrate, self-preoccupation, and feelings of uncertainty or helplessness. These cognitive responses have downstream effects on decision-making (Naqvi, Shiv, and Bechara 2006; De Martino et al. 2006), in part by causing reappraisal of value assessments (Phelps, Lempert, and Sokol-Hessner 2014). Indeed, decision-making and state anxiety activate the same areas of the brain, suggesting an important link between the two (Haegler et al. 2010).

To date, stress's influence on decision-making has been explored more deeply in psychology and economics as compared to political science (Lerner et al. 2015).[3] Stress influences decision-making by changing how much attention the brain devotes to the choice at hand, versus to other issues competing for mental attention. The ability to consciously pursue

[2] Anxiety is typically differentiated into two categories: trait and state anxiety. Trait anxiety characterizes one's ongoing propensity to feel worry or stress, while state anxiety represents temporary discomfort, nervousness, or arousal in response to a specific situation or perceived threat (Endler and Kocovski 2001). This paper focuses on state anxiety or acute stress, specifically state anxiety caused by financial insecurity.

[3] Findings indicate that positive and negative valances alone are insufficient metrics for predicting behavior, and that sadness, fear, and anger drive different types of responses. Fear correlates with pessimistic assessments of future events, while anger correlates with optimism (Lerner and Keltner 2000). Sadness increases one's willingness to pay for a good (Cryder et al. 2008), while disgust and sadness show distinct influences on consumer choice (Lerner, Small, and Loewenstein 2004). Sadness and anger lead to different assessments of the probabilities of sad or angering events (DeSteno et al. 2000).

certain thoughts or behaviors and inhibit others is known as *executive control*. Executive control is considered to be a finite resource, where increasing the amount of attention demanded by one activity decreases performance in other areas both simultaneously and across time (Baumeister et al. 1998). Stress inhibits three executive function skills which are all relevant in the context of political decision-making and behavior, especially one's ability to follow through on a desire to take political action. These skills include *impulse control* (filtering distractions, maintaining short- and long-term priorities), *working memory* (ability to remember information, think about multiple concepts, follow multi-step instructions, stop and return to an action), and *mental flexibility* (multitasking, re-establishing priorities, switching between projects).

Other fields conceptualize effect of stress on decision-making in congruent but distinct way. The brain has two processing modes: an automatic and a deliberative system, also referred to as System I and System II. Unexpected stimuli, including triggers of stress, shift how the brain processes information. Stress activates the deliberative System II, causing a reevaluation of otherwise routine decisions made by the brain's automatic System I (Kahneman 2013). However, one consequence of this increased attention is that as mental focus in one area increases, willpower in other areas decreases (Shiv and Fedorikhin 1999). This leads to decisions that privilege short-term rewards, even when such decisions will increase long-term costs (Luhmann, Ishida, and Hajcak 2011). Heightened emotions linked to a stress response decrease performance on subsequent tests of executive control, such as working memory and response inhibition (Schmeichel 2007). Individuals displaying high levels of worry take more time and gather more information to make decisions (Ladouceur, Talbot, and Dugas 1997). Overall, higher demands on the brain's executive control appear to deplete the bandwidth available for other mental tasks (Pocheptsova et al. 2009).

1.3.2 Poverty

Downstream cognitive and behavioral consequences of stress are expected to be similar, regardless of the source; this paper focuses specifically on financial stress given its ability to answer questions about economic disparities in political participation. Poverty has been shown to correlate with higher levels of stress (Haushofer and Fehr 2014), and like stress, poverty influences cognitive processes such as decision-making and executive control. When faced with scarcity (a shortage of food or money, for example), the brain diverts a greater amount of its attention to solving the immediate problem (Radel and Clément-Guillotin 2012); this is called *cognitive tunneling* (Mullainathan and Shafir 2013). Multiple studies have shown how scarcity conditions (real or simulated) draw increased levels of mental attention (Yeshurun and Carrasco 1998; Anderson, Laurent, and Yantis 2011). Cognitive tunneling can increase the perceived magnitude of an immediate concern, holding actual characteristics constant. Because focus is finite, the attention captured by scarce resources reduces the attention one can devote to less immediate needs (Carrasco, Ling, and Read 2004).

Cognitive tunneling improves accuracy in the area where the mind is focused (Rosa-Díaz 2004). However, focusing the mind also limits choices (Slamecka 1972; Nickerson 1984; MacLeod 2007). Furthermore, scarcity conditions can also cause compulsive, short-term reward-seeking behavior (Shiv and Fedorikhin 2002; Baumeister and Tierney 2012; Boon et al. 2002). A brain focused on scarcity will see fewer decision possibilities and have greater difficulty acting on the optimal option. Consequently, scarcity conditions impair cognitive function (Blair and Cybele 2012). People in poverty expend greater cognitive effort

making economic decisions (Spears 2011) and have less willpower in decisions requiring self-control (Banerjee and Mullainathan 2010).

The influence of scarce resources is heightened when poverty-related stress is induced. Randomly elevating financial stress among people of a low socio-economic level decreases cognitive performance by the equivalent of 16 IQ points (Mani et al. 2013). Experimentally induced poverty exhibits similar patterns, with improved short-term focus but decisions that undermine one's long-term strategic interests (Shah, Mullainathan, and Shafir 2012). One's decision-making environment can exacerbate the extent to which cognitive tunneling occurs, affecting how much attention is diverted to the problem of personal resource scarcity. Random weather shocks elevate cortisol levels for poor Kenyans whose livelihoods depend on rainfall (Chemin, De Laat, and Haushofer 2013), and negative income shocks decrease patience and increase time discounting (Haushofer, Schunk, and Fehr 2013).

1.3.3 Political Behavior

Based on what is known about anxiety and poverty, acute financial stress should influence political action in two ways: through emotional processing and bodily responses (Spezio and Adolphs 2007). Anxiety changes how people process information to make decisions, often leading to more information-seeking related to the source of anxiety. At the same time, though, stress causes physiological and cognitive changes that inhibit one's ability to act on this heightened interest and additional information.

Initially, anxiety drives greater information seeking about political choices (Brader 2011; G. Marcus 2012). Further studies indicate that anxiety selectively boosts the search for information that will address the source of this anxiety, leading to potentially unbalanced information acquisition (Valentino et al. 2009). Yet, increased information-seeking in

response to anxiety or threat does not appear to translate into increased learning (Huddy et al. 2005). Anxious thoughts consume finite mental bandwidth normally devoted to more complex cognitive tasks, while also heightening impulsivity and sensitivity to distractions (Huddy et al. 2012).

Stress also influences how people make decisions based on this information. Fear increases attention and openness to persuasion (Brader 2005, 2006), as well as susceptibility to framing effects (G. E. Marcus et al. 2005). Political messages that emphasize potential losses and generate fear have greater persuasive power (Arceneaux 2012), while messages that mirror one's affective state are more persuasive (DeSteno et al. 2004). Fear increases risk assessments and support for precautionary policies, while anger decreases risk and a preference for caution in public policy (Lerner et al. 2003). The interaction between threat perception and anxiety also shapes public opinion: anxiety increases support for isolationism while threat perception in the absence of anxiety increases support for military action (Huddy et al. 2005), and anxiety increases both physiological arousal and stronger anti-immigration attitudes (Renshon, Lee, and Tingley 2015).

When it comes to the effect of stress on measurable political behavior, fewer studies exist. Randomly cueing people to experience elevated stress correlates with decreased voter turnout (Hassell and Settle 2013). Anger, rather than anxiety, appears to be mobilizing (Valentino et al. 2011), and increased issue salience may have unintended demobilization effects by making the target audience anxious (Levine 2015). People who have genetic traits that predispose them toward experiencing high negative affect are less inclined to be registered voters or to vote, but they are more susceptible to mobilization efforts (Settle et al. 2011). Overall, though, there are fewer clear results on how stress influences action or the mechanism driving this relationship.

1.4 The Good Intention Gap

Economically, poverty is a situation of high vulnerability where even small unexpected costs can profoundly destabilize a household. Cognitively, poverty over time can generate a hypersensitivity to acute stressors. As a result, people who are poor will a) be more likely to experience unexpected financial crises and b) be more affected psychologically by acute financial shocks. I expect, then, that on average people who are poor are living with higher levels of stress (or at least experience stressful shocks more frequently), and that they also will show greater bandwidth tax and compromised executive function in response to these acute shocks.

In the short-term, acute financial stress should increase people's stated concern about economic policies, as the consequences of these policies will be perceived as being greater. Furthermore, consistent with literature on anxiety and information, financial stress will induce people to seek more information about these political issues. Low-resource individuals in high-stress conditions should seek relevant information at higher rates than other groups – both because of increased issue salience and the heightened threat response caused by living in a chronically stressful environment.

H_1: Acute financial stress causes increased information-seeking on political issues, especially among the poor.

At the same time, financial stress should have measurable cognitive effects on strategic thinking, which will mediate political behavior. Low-income individuals exposed to acute financial stressors should exhibit increased impulsivity and poorer performance on

cognitive tasks. This is because anxious thoughts consume finite mental bandwidth and cause cognitive tunneling, making it hard to focus – or perform optimally – on other cognitive tasks.

H_2: Financial stress causes an increase in short term-oriented thinking, especially among the poor.

When political actions are immediate and easy, these cognitive changes should actually make political participation more likely: stress increases issue salience as well as impulsivity, which both are expected to drive higher rates of immediate action.

H_3: When political engagement is immediate and easy, financial stress causes an increase in political action, especially among the financially insecure.

However, cognitive processes – particularly when taxed by stress and poverty – may work against stated long-term preferences for political participation. This disconnect between intent and action has been explored in regards to cravings and desires (Loewenstein 1996), financial decisions (Balakrishnan, Haushofer, and Jakiela 2015), and protective health behaviors (Ferrer, Portnoy, and Klein 2013). With a longer timeline for action, financial stress can drive a vicious cycle of inaction: financial stress diminishes cognitive resources available for complex tasks, causing forgetfulness about addressing longer-term concerns, which then increases vulnerability to future financial shocks.

In the political realm, I theorize that this leads to the *Good Intention Gap:* When opportunities for political action are delayed or involve barriers, financial stress correlates with unfulfilled intentions to act. While stress-induced impulsivity and issue salience drive a

desire to participate, financial stress also consumes citizens' limited mental bandwidth, causing them to focus on immediate needs and thus forget to take this desired political action. Forgetfulness is a logical extension of cognitive tunneling and the taxed mental bandwidth observed when stress is randomly induced. As the source of stress is magnified in people's minds, their ability to remember (let alone act upon) long-term interests diminishes.

H_4: When opportunities for participation are not immediate, financial stress increases the likelihood of forgetting to take political action.

1.5 Methods

First, I experimentally induce financial stress in a study designed to measure both political behavior and potential cognitive mediators. 524 U.S. residents were given a survey consisting of political interest and knowledge questions, demographic measures, behavior games and cognitive tests. The survey also presented a current policy issue: the possible increase in the federal minimum wage[4]. Respondents were then given the opportunity to immediately support or oppose the policy change by signing an online petition on the advocacy website Change.org.[5]

Participants were recruited using Amazon's Mechanical Turk platform, having been informed that they would be taking an interactive opinion survey. Respondents do not comprise a representative sample of U.S. citizens; however, random application of treatment conditions enables differences in average outcomes between cohorts to remain internally valid. The population is also more representative of this study's core demographic of interest

[4] "In recent months, the President has been talking about raising the national minimum wage."
[5] The instructions clarify that participants will receive no additional compensation for taking this online action.

because of their particular susceptibility to financial stressors: low- to middle-income Americans who are more likely to be under- or unemployed.

The decision to sign an online petition during the course of the study is the experiment's key outcome variable, operationalizing political mobilization at the individual level. I track click rates to access the petition website, and this value serves as my measure of actual political mobilization.[6] The dependent variable is political action (rather than issue support); respondents received simultaneous opportunities to support or oppose the issue. This study measures political action concurrently with a set of behavioral and cognitive metrics, thereby distinguishing itself from other studies of political behavior which have used self-reported information about behavior or intent to act rather than measuring political action in real time. Consequently, while issue opinion, strength of sentiment, and personal relevance of issue are all measured in the study, the analysis presented here focuses specifically on the effect of financial stress on political behavior.

I use the p-beauty contest game (Nagel 1995) to measure respondents' level of strategic reasoning in response to experimental primes and socio-economic level.[7] Respondents are told to choose a number between 0 and 100, where the winner is the response that best anticipates the group's average response multiplied by a factor *M*. The more iterations of the game a respondent is able to consider, the more their response will converge on the game equilibria: 100 when *M* is higher than 1 and zero if *M* is less than 1. However, few people consider more than one or two iterations of this game when giving their responses (Bosch-Domenech et al. 2002; Camerer 2003). Respondents in this study played six games

[6] To protect respondent anonymity, I am unable to link specific survey responses with personal data provided to Change.org, the website where I made these petitions available.

[7] Prior to completing the actual survey, respondents were required to pass a series of sample questions, which demonstrated their understanding of an ability to correctly complete the types of cognitive questions included in the survey.

with different values of *M*. They were assigned a "Level-K" score (Stahl and Wilson 1995) based on the minimum number of iterations they considered in at least 4 of their 6 games. 51% of respondents in this study classified as Level-0, or non-strategic. 44% of respondents classified as Level-1, 5% classified as Level-2. Given the distribution of the data, respondents were divided into two categories for regression analysis: non-strategic (Level-0) and strategic (Level-1 and Level-2).

Respondents were also asked for their opinion on whether they cared more about immediate or long-term effects of the minimum wage policy (on a nine-point scale)[8]. Also, to test whether stress causes information seeking, respondents were offered the opportunity to access additional online information about proposed minimum wage policy. Web links were provided after the political action was measured so that any additional information would not bias participation rates.

The experiment randomly induced financial stress using a set of hypothetical scenarios consistent with the survey primes used by Mani et al. (2013) to induce low or high financial stress (see Appendix for full scenario texts). Importantly, all scenarios are hypothetical and at no point changed the actual costs and benefits of taking political action. Both treatment conditions presented three scenarios involving small or large unexpected financial expenses (the magnitude of expenses was either small or large for all three scenarios). Expenses in the high-cost scenarios averaged approximately $1500.[9] The low

[8] "Which matters more to you: your current situation or future consequences of this policy?" (referencing the policy to raise the minimum wage)

[9] Based on survey questions and the above discussion, costs at this level would represent severe financial hardship for 51% of respondents (63% of low income respondents and 34% of high income respondents).

financial cost scenario presented unexpected costs one tenth as large as the high cost treatment condition[10].

To be consistent with previous studies' methodologies, survey effects are reported here as a function of effective household income[11]. Results are similar if the sample is split and analyzed by self-reported ability to pay an unexpected $1500 cost in 30 days, or by one's ability to pay the bills this month – both of which more directly measure current financial stress. Following the protocol from Mani et al (2013), the sample is split into high and low income cohorts at the sample median ($31,820) to assess how financial stress affects cognition and political action, particularly for low-income citizens. Treatment was randomly assigned orthogonal to income. The sample is balanced between high and low income groups, and between treatment and controls, with the only major imbalances being characteristics such as medical care and education, which one would expect to be correlated with socioeconomic status.[12] Distribution by gender is uneven, but a chi-square test finds the difference is not significant at 95%.

Respondents were asked to report their level of anxiety twice – at the beginning and end of the survey – using questions adapted from the Positive Affect Negative Affect Schedule (PANAS) (Watson, Clark, and Tellegen 1988). For low-income respondents, the average level of anxiety induced by the survey is significantly greater than for low-income respondents in the control group. On average, both high- and low- income respondents show a statistically significant increase in stress post-survey under the high-cost treatment condition.

[10] This is a larger difference than that used in the Mani et al. (2013) paper (low-cost treatment in their survey experiment was up to 2.7 times larger than the low-cost treatment used here). The smaller sums were chosen for this survey based on pilots indicating that a significant number of respondents still experienced measurable increases in financial anxiety using the "low-cost" financial sums from Mani et al. (2013). At this reduced level, 15% of respondents still said they would have a hard time paying the amount within 30 days.

[11] Measured by dividing household income by the square root of household size

[12] See Appendix (Table 1.6) for balance table.

For poor respondents especially, the high-cost treatment condition led to a larger average change in stress during the survey compared to the low-cost treatment.[13] Free responses provided by participants illustrate how the survey induced financial stress, also showing that the level of stress and imagined hardship differed by treatment group and income level (see Appendix for examples).

In addition to the main study described above, a preliminary round of data was collected from an additional 790 online respondents using the same randomization, survey primes, p-beauty contest game, and online petition opportunity. Where applicable, these data are used to demonstrate robustness of findings. However, this preliminary study did not measure variables such as post-survey stress central to the present discussion, and therefore the preliminary study is used as supplementary evidence only.

1.6 Results

Results show that respondents whose anxiety increased during the survey were more likely to seek additional information about political issues, as were people who reported that they would have difficulty paying their bills this month (See Appendix, Table 1.7). This suggests that financial stress – whether actual or experimentally induced – affects information seeking in a way that is consistent with existing research on stress. The data also show that high-cost survey conditions significantly increased respondents' interest in political action – in this case signing an online petition – even before they were given an opportunity to do so during the study (See Appendix, Figure 1.4). This increase in reported likelihood of taking action was especially significant among low income respondents.

[13] See Appendix (Figure 1.3) for manipulation check.

1.6.1 Immediate Political Action

This study moves beyond information seeking and political interest to measure actual political participation among respondents. Results show that when the opportunity to take action is immediate, actual rates of political participation follow a pattern similar to respondents' reported intent to act. A logit regression of petition signing on treatment and financial measures shows that the treatment scenarios, even though they were hypothetical and orthogonal to the policy issue, induced higher rates of petition signing (Table 1.1). Columns 3-6 show that respondents for whom the survey elevates stress (regardless of treatment condition) also are more likely to sign the online petition,[14] an effect that holds when controlling for anger.[15]

Results also suggest that the high-cost treatment condition had a larger mobilizing effect on low income levels and among the financially vulnerable.[16] While only significant at 90%, results consistently show that treatment interacted with financial difficulty (Columns 1 and 4) increases political action, as does treatment interacted with lower incomes (Columns 2, 5, and 6). The results for income and stress remain significant even when controlling for education. This suggests that while income and education level are often linked, financial stress is correlated with differences in political participation in ways that are distinct from education level.

Respondents who chose to sign the online petition took an average of 2.5 minutes longer to complete the study. Payment was set at a fixed rate, contingent on survey

[14] In Column 6, the interaction term between anxiety and treatment, while not significant at 95%, provides suggestive evidence that the relationship between anxiety and mobilization may not be linear. It is consistent with previous anxiety research to expect that anxiety may mobilize to a certain point, after which the "fight or flight" response inhibits action. This merits further inquiry.

[15] While anger and anxiety are both considered part of negatively-valenced emotions, anger typically has been found to be more mobilizing than anxiety. Therefore, controlling for mobilizing effects of anger permits a clearer analysis of the effects of anxiety.

[16] Household income is measured as a continuous variable rather than a binary variable dividing income into high and low categories to improve model fit.

completion. Thus, petition signers paid a cost of $0.25 in foregone earnings (time spent signing rather than completing more Mechanical Turk assignments).[17] Because low-income respondents were willing to sign the petition at rates equal to or higher than high-income respondents, cost of political action alone is not sufficient to explain low participation rates among the poor.

Mediation analysis tests how anxiety mediates the effect of the high-cost treatment condition on the probability of taking online action. Results show that magnitude of anxiety change measured during the survey mediates 13% of the total effect of the treatment on taking action, significant at 90%. Effect size and significance increases when mediation analysis is conducted strictly on the post-survey anxiety measure. Anxiety levels at the end of the survey mediate 20% of the total effect of treatment on political action, significant at 95%.[18]

1.6.2 Now Versus Later: Dissonance Between Conscious and Unconscious Thought

In a departure from previous studies, this online experiment not only measured the relationship between financial stress and action, but it also tested possible cognitive mechanisms by which observed behavior changes occur. The survey experiment measured self-reported time preferences and demonstrated performance in strategic thinking. The high cost treatment induced divergences both between stated preferences and demonstrated behavior, and between rich and poor cohorts' cognitive performance.

[17] Payment rate was set at $6.00 per hour, or $0.10 per minute, given average survey completion times in the pilot.
[18] Using Binary Mediation Stata package with bootstrapped confidence intervals.

Table 1.1: Effects of Latent and Induced Financial Stress on Action

VARIABLES	(1) Bills	(2) Income	(3) Anxiety	(4) Bills & Anxiety	(5) Income & Anxiety	(6) Full Model
Treatment	-0.0848	0.815**	0.166	-0.151	0.761**	0.777**
	(0.244)	(0.340)	(0.191)	(0.253)	(0.350)	(0.363)
Hard to Pay Bills	0.131			0.151		
	(0.259)			(0.262)		
Hard to Pay Bills X Treatment	0.672*			0.667*		
	(0.364)			(0.367)		
Household Income (10K)		-0.00811			-0.0111	0.00382
		(0.0551)			(0.0557)	(0.0583)
Income (10K) X Treatment		-0.159*			-0.161*	-0.160*
		(0.0826)			(0.0833)	(0.0851)
Anxiety Change			0.298**	0.300**	0.299**	0.360***
			(0.132)	(0.132)	(0.132)	(0.137)
Anxiety Change X Treatment			-0.284	-0.312	-0.300	-0.349*
			(0.189)	(0.190)	(0.189)	(0.195)
Angry Change			-0.0872	-0.0862	-0.0881	-0.0903
			(0.138)	(0.138)	(0.138)	(0.143)
Angry Change X Treatment			0.170	0.203	0.209	0.234
			(0.192)	(0.194)	(0.194)	(0.199)
Female						0.296
						(0.195)
Age						-0.00405
						(0.00962)
Student						0.827***
						(0.305)
Ideology						-0.103***
						(0.0391)
White						-0.256
						(0.234)
College						0.0528
						(0.199)
Constant	-0.598***	-0.516**	-0.453***	-0.515***	-0.416*	0.0938
	(0.168)	(0.227)	(0.139)	(0.176)	(0.235)	(0.478)
Observations	524	524	524	524	524	521

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

After being informed that "in recent months the President has been talking about raising the national minimum wage" respondents were asked whether they cared more about current financial concerns or long-term effects of the minimum wage policy. Low income respondents placed significantly higher importance on long-term policy effects if they had been primed with the high-cost scenarios (Figure 1.1). High income respondents showed no significant difference in their preferences by treatment condition.

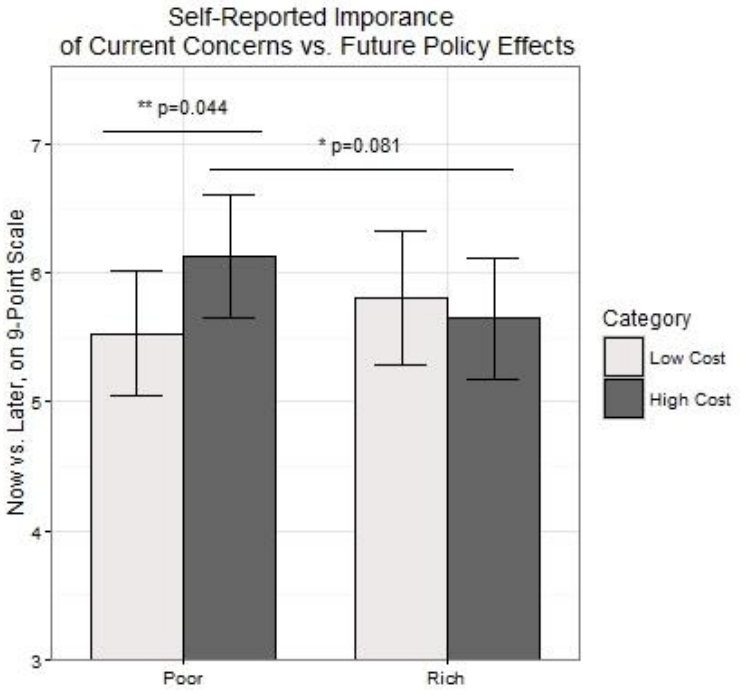

Figure 1.1: Self-Reported Importance of Current Concerns versus Future Policy Effects

Simultaneously, respondents show the opposite pattern for future-oriented strategic thinking, measured through the p-beauty contest game: on average, strategic thinking for the low income cohort is lower under the high-cost condition, and a cognitive performance gap emerges in the high-cost condition between rich and poor cohorts. The variable used in the

analysis is binary, where 0 represents non-strategic thinkers and 1 represents strategic thinkers, based on whether respondents showed at least one iteration of strategic thinking in at least 4 of the 6 game rounds.

Table 1.2: Effects of Latent and Induced Financial Stress on Strategic Thinking

VARIABLES	(1)	(2)	(3)	(4)	(5)
Treatment	0.157	0.159	0.136	0.143	0.0803
	(0.257)	(0.181)	(0.270)	(0.186)	(0.274)
Low Income X Treatment	-0.590*	-0.507*	-0.616*	-0.546**	-0.620*
	(0.357)	(0.261)	(0.373)	(0.268)	(0.373)
Low Income	-0.300	-0.125	-0.239	-0.0557	-0.237
	(0.249)	(0.181)	(0.268)	(0.190)	(0.269)
Female			-0.442**	-0.369***	-0.445**
			(0.194)	(0.138)	(0.194)
Age			0.0167*	0.0119*	0.0162*
			(0.00954)	(0.00642)	(0.00963)
Ideology			-0.0649*	-0.0377	-0.0655*
			(0.0379)	(0.0272)	(0.0380)
White			1.033***	0.856***	1.028***
			(0.244)	(0.179)	(0.245)
College			0.357*	0.340**	0.353*
			(0.194)	(0.194)	(0.195)
Student			0.0430		0.0318
			(0.310)		(0.310)
Angry Change					0.148
					(0.141)
Angry Change X Treatment					-0.215
					(0.192)
Round 1		-1.606***		-1.622***	
		(0.131)		(0.137)	
Constant	0.192	0.0803	-0.892*	-0.853***	-0.822*
	(0.187)	(0.145)	(0.465)	(0.323)	(0.473)
Observations	521	1,311	518	1,304	518

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Regression analysis shows that the interaction of low income and high-cost treatment drives a decrease strategic thinking (Table 1.2). Because results in the current study may be

underpowered, they were combined in Column 2 with results from the preliminary round of data collection, adding an additional 790 observations. Treatment condition was consistent between the two survey rounds, but ancillary questions differed, particularly after the treatment and online action opportunity. Results show that under the high stress condition, the high income cohort is slightly more likely to demonstrate strategic reasoning, while the low income cohort less likely to show strategic reasoning under the high-stress treatment.

When strategic reasoning is measured not as a binary value but rather as the total number of positive Level-K scores obtained over the game's six rounds, we also see that high stress conditions drive a significant divergence in strategic thinking between rich and poor. In the low cost condition, there is no discernable difference in strategic thinking scores between rich and poor cohorts. However, under the high cost condition, performance diverges and the poor cohort shows a significantly lower level of strategic thinking compared to the wealthier cohort (Figure 1.2).

Table 1.3 tests how these cognitive measures correlate with the probability of signing a petition during the survey experiment. Self-reported importance of future policy effects is consistently and significantly correlated with higher likelihood of signing the petition, while strategic thinking does not show a significant correlation. In this context, higher concern about the future may be an additional consequence of stress; as demonstrated in a comparison of Figures 1.1 and 1.2, heightened concern about the future may correlate with decreased cognitive capacity to make strategic choices that advance these long-term interests. These findings reinforce the assertion that when opportunities to act are immediate, issue salience and impulsivity are larger determinants of action than the ability to think strategically or plan ahead. A comparison of Columns 6 and 7 shows that a concern for future policy effects is a

stronger motivating force for high income respondents, while increases in stress are more associated with taking action among the poor.

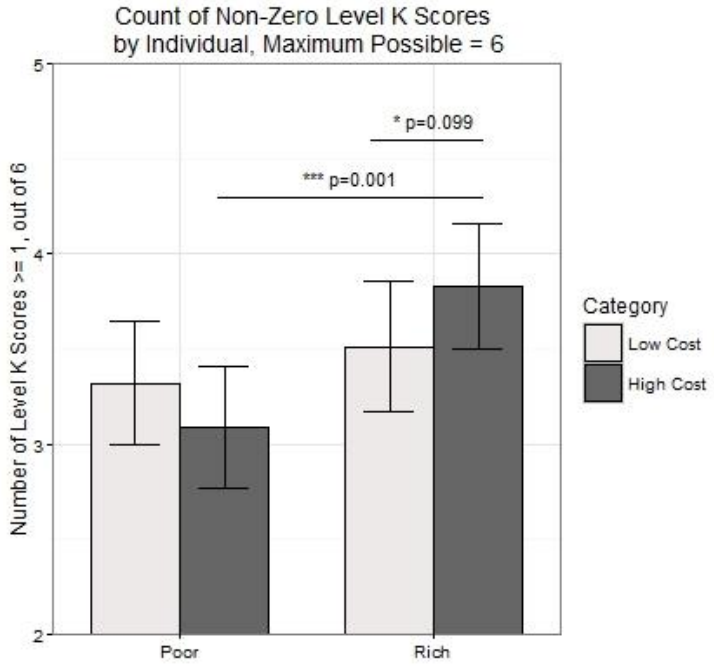

Figure 1.2: Average Count of Non-Zero Level-K Scores (0-6)

Furthermore, mediation analysis suggests an explanation for why Level K scores are not significantly correlated with action in Table 1.3. When the combined data from the main study and preliminary round are analyzed (using the expanded dataset for greater power), Level K mediates 13% of the treatment's effect on taking online action for the high income cohort. For the low income cohort, Level K score mediates 80% of the treatment's effect on taking action, significant at 90%. The ratio of indirect to direct effect is -.64, indicating that distinct mechanisms may drive opposite effects, complicating efforts to understand how and when financial stress mobilizes. Specifically, treatment appears to decrease Level K scores

for low income respondents, but both higher Level K scores and direct treatment effects increase political participation.

Overall, results show that situations which elevate financial stress result in higher participation, particularly among the poor – at least when the opportunity for political action is easy and immediate. As this study has also indicated, the types of people most likely to be mobilized by financial concerns in the short term are also most likely to incorrectly assess their unconscious time preferences for decision-making or issue salience. The following analysis suggests that the cognitive disconnect between stated preferences and demonstrated behavior generated by financial stress leads to a desire and good intentions to participate in politics; yet, when political action is too far in the future, those experiencing financial stress are less likely to act on their good intentions to participate.

Table 1.3: Cognition and Correlates of Online Action

VARIABLES	(1) Cognitive	(2) with Income	(3) With Bills	(4) With Anxiety	(5) Full Controls	(6) High SES only	(7) Low SES only
Positive Level K	0.0231	0.0789	0.110	0.0206	0.118	0.358	-0.184
	(0.181)	(0.184)	(0.186)	(0.182)	(0.197)	(0.274)	(0.254)
Long-Term vs Immediate Effects	0.0760**	0.0697**	0.0778**	0.0750**	0.0737**	0.100**	0.0528
	(0.0323)	(0.0326)	(0.0326)	(0.0326)	(0.0339)	(0.0493)	(0.0439)
Treatment		0.729**	-0.0811	0.115	0.687*	0.00508	0.228
		(0.344)	(0.246)	(0.190)	(0.367)	(0.282)	(0.263)
Household Income (10K)		-0.0138			-0.00399		
		(0.0556)			(0.0588)		
Income (10K) X Treatment		-0.140*			-0.142*		
		(0.0835)			(0.0861)		
Hard to Pay Bills			0.178				
			(0.262)				
Hard to Pay Bills X Treatment			0.621*				
			(0.367)				
Anxiety Change				0.279**	0.358***	0.284	0.276*
				(0.127)	(0.137)	(0.223)	(0.157)
Anxiety Change X Treatment				-0.238	-0.350*	-0.242	-0.238
				(0.179)	(0.196)	(0.296)	(0.229)
Female					0.307		
					(0.197)		
Age					-0.00294		
					(0.00966)		
Student					0.865***		
					(0.306)		
Ideology					-0.101**		
					(0.0393)		
White					-0.228		
					(0.241)		
College					0.0511		
					(0.201)		
Angry Change					-0.107		
					(0.144)		
Angry Change X Treatment					0.235		
					(0.202)		
Constant	-0.880***	-0.931***	-1.115***	-0.870***	-0.441	-1.290***	-0.586*
	(0.236)	(0.310)	(0.285)	(0.259)	(0.534)	(0.410)	(0.337)
Observations	521	521	521	521	518	248	273

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1.6.3 Immediate versus Delayed (In)Action: 2012 ANES

I turn now to national survey data to further test my hypotheses on a representative sample of U.S. residents where political action opportunities are no longer immediate. In the absence of representative panel data that tracks both cognitive measures and political action, the American National Election Study (ANES) (2012) provides suggestive information about how stress and financial stress correlate with good but unfulfilled intentions to participate in politics. Variables which specifically measure financial concerns include income, employment status, and a five-point measure of how worried respondents are about household finances. Also, the 2012 ANES is the first National Election Study to include questions that measure Big Five personality traits, including a measure of respondent stress. The relevant question[19] arguably measures trait anxiety more than stress or state anxiety[20], but it still provides a useful test for whether one's predisposition to experience stress is correlated with differences in downstream behavior.

The ANES 2012 survey asks respondents prior to the presidential election how likely they are to vote, and then respondents are contacted after the election and asked whether they did in fact vote. Most studies analyzing voting behavior use intent to vote or reported voting behavior as the dependent variable in their analysis. However, this study seeks to answer different question: Who are the people who have high intentions to vote but ultimately did not do so? Therefore, the dependent variable used here is binary, where respondents are given a value of 1 if they are "well-intentioned non-voters" -- people who intend to vote but to not do so.[21] Respondents who intend to vote and report doing so are coded as zeroes; results are

[19] "We're interested in how you see yourself. Please mark how well the following pair of words describes you, even if one word describes you better than the other: 'anxious, easily upset' "
[20] ANES 2012 Big Five questions are based on the Ten Item Personality Inventory (TIPI), which is recognized to measure personality traits more than temporary states.
[21] If a respondent reports a >50% likelihood of voting, s/he is coded as intending to vote.

similar if the variable is coded 1 for "well-intentioned non-voters" and 0 for all other respondents regardless of voting intent.

A logit regression modeling the correlates of "well-intentioned non-voting" shows that the U.S. citizens most likely to have good intentions but who fail to vote are precisely the types for which the above studies found that financial stress distorts strategic thinking and time preferences. Table 1.4 finds that worries about household finances and general stress both correlate with a higher likelihood of being a well-intentioned non-voter.[22] Higher household income correlates with lower probabilities of being a well-intentioned non-voter. These effects hold when using validated voting data (see Table 1.8 in the Appendix). In the full regression (Table 1.4, Column 4), the effects of stress and financial worry are absorbed by other variables that likely correlate with stress (age, education, life satisfaction, and perception of politician responsiveness). This suggests that commonly used demographic variables may mask underlying psychological factors affecting behavior. Even so, income continues to show a significant negative relationship with the Good Intention Gap when controlling for education, suggesting again that poverty matters for political participation independent of education.

Looking at the data not only by who votes and who does not, but also by who *wants* to vote, I find evidence that lower voting rates among the poor are not due to a lack of disinterest in politics or a lack of civic-mindedness. Rather, people who are poor, anxious, and who face uncertain future economic prospects are more likely to want to vote but then fail to do so, as compared to other U.S. citizens.

[22] Analysis of pooled ANES results (1976-2012) shows that across years income remains negatively and significantly correlated with the good intention gap. Only in the 2012 data, though, can we see the relationship with anxiety because Big Five questions were only added in that year.

Table 1.4: Correlates of Intent/Voting Disconnect: ANES 2012 Panel

VARIABLES	(1)	(2)	(3)	(4)
Worried about finances	0.324**	0.301*	0.345**	0.0898
	(0.156)	(0.156)	(0.170)	(0.177)
Household income (log)	-0.351***	-0.339***	-0.345***	-0.216***
	(0.0515)	(0.0520)	(0.0601)	(0.0694)
Anxious		0.272*	0.278*	0.157
		(0.143)	(0.158)	(0.163)
Employed			0.380**	0.129
			(0.162)	(0.165)
Female			-0.377**	-0.390**
			(0.160)	(0.167)
White			-0.390**	-0.197
			(0.180)	(0.196)
Ideology			0.0189	0.0386
			(0.0481)	(0.0509)
College				-0.536***
				(0.190)
Satisfied with life				-0.219**
				(0.0877)
Officials care				-0.145*
				(0.0838)
Age				-0.0326***
				(0.00593)
Veteran				-0.389
				(0.291)
Married				-0.0175
				(0.178)
Constant	1.340**	1.081**	1.255**	1.621**
	(0.525)	(0.543)	(0.614)	(0.698)
Observations	4,199	4,190	3,672	3,649

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1.6.4 Causes of Inaction: Census CPS 2014 Voting Supplement

Despite a wealth of data on public opinion, voter preferences, and voting behavior, few nationally-representative data sets exist on the reasons for nonparticipation. The American National Election Study does not collect reasons for not voting. [23] The Census CPS Voting and Registration Supplement (2014) provides a glimpse into citizen reasons for not voting. I first analyze the data to identify the correlates of well-intentioned inaction – a robustness check on the ANES analysis above. The census data do not track intent to vote, so I use voter registration is a proxy for intent. While this is likely to underrepresented individuals experiencing participation barriers – as people must already have overcome the initial hurdle of registration – it is also a conservative test of the hypothesis that low income citizens who want to vote more often fail to do so. Table 1.9 in the Appendix shows results similar to those found in Table 1.5: as household income decreases, respondents are more likely to fall into the well-intentioned nonvoter category (registered but did not vote). This relationship holds both when the analysis is conducted on all respondents and on registered voters alone.[24]

One might expect poor people to be more likely to take advantage of voting alternatives like early voting and voting by mail, which are designed to increase the convenience of participation given constraints of their work schedule, transportation problems, and other barriers on Election Day. However, the 2014 Census Data show that poorer people are actually *less* likely to take use these voting alternatives. Rather, income is positively

[23] This information gap is underscored by current petition on the ANES Forum to include such questions for the first time in 2016, emphasizing, "Researchers cannot assume that non-participants are always lacking the interest to participate… Reasons can also be assessed for the combined impact of diverse respondents' identities by examining whether particular identity groups are more impacted by potential hurdles to their electoral participation". forum.electionstudies.org/proposal-for-the-2016-anes-time-series-study-reasons-for-electoral-non-participation/

[24] Low income is also correlated separately with both lower probability of being registered and with lower probability of voting.

correlated both with voting early and voting by mail (see Tables D and E in the Appendix for full results).[25] This supports prior analyses showing that structural factors alone do not explain the participation gap, and that efforts to make voting more accessible are not shrinking disparities in participation between rich and poor (Berinsky 2005).

Survey responses provide support for the theory that financial stress monopolizes mental bandwidth. Table 1.5 presents the top 6 reasons respondents listed for not voting. Results show that among nonvoters, lower incomes correlate with a higher likelihood of *forgetting* to vote. Pure availability of time does not appear to be a significant limiting factor for the poor; wealthy respondents are more likely to say that they are *too busy*, and inconvenient poll hours is not correlated with income. The distinction between forgetting and being too busy to vote is a provocative one, and it suggests that people who report forgetfulness as their main reason for political inaction did have time to vote – or at least wanted to make time – had their mental attention been focused on political action.

While this analysis of the 2012 ANES and Census CPS 2014 Supplement data does not causally link stress and financial stress to well-intentioned non-voting, the results do suggest that when the mind is focused on addressing high financial costs, there is less mental bandwidth to consider or act on non-immediate interests. Time, candidate appeal, and issue salience do not appear to be more common reasons for not voting among people of lower socio-economic status.

[25] When respondents are divided into high and low income cohorts, even unemployed people are no more likely to vote early that the employed.

Table 1.5: Reasons for Not Voting and Their Correlates

VARIABLES	(1) Forgot	(2) Sick	(3) No Appeal	(4) No Effect	(5) Bad Hours	(6) Busy
Household Income (10k)	-0.0373***	-0.0973***	-0.0137	-0.00880	0.00310	0.0296***
	(0.0133)	(0.0142)	(0.0128)	(0.00946)	(0.0195)	(0.00754)
Unemployed	0.191	0.0450	0.359**	0.495***	-0.250	-1.009***
	(0.138)	(0.177)	(0.150)	(0.104)	(0.324)	(0.123)
Not College Grad	0.262***	0.160**	0.108	0.269***	0.132	-0.173***
	(0.0820)	(0.0785)	(0.0873)	(0.0591)	(0.140)	(0.0477)
Years Living Here	0.0148	0.0978***	0.0272	0.0277**	0.0497	1.87e-05
	(0.0175)	(0.0188)	(0.0194)	(0.0135)	(0.0362)	(0.0112)
White	-0.243***	-0.0351	0.364***	0.177**	-0.0827	-0.0951*
	(0.0827)	(0.0818)	(0.105)	(0.0692)	(0.151)	(0.0566)
Married	0.0433	-0.0962	0.0581	-0.0292	0.152	0.354***
	(0.0686)	(0.0626)	(0.0715)	(0.0508)	(0.118)	(0.0440)
US Born	-0.161	0.307***	0.152	0.186**	-0.0804	-0.333***
	(0.110)	(0.104)	(0.127)	(0.0907)	(0.210)	(0.0717)
Veteran	0.0478	0.139	0.127	-0.217**	-0.101	-0.00722
	(0.126)	(0.0952)	(0.112)	(0.0892)	(0.239)	(0.0835)
Female	0.111**	0.570***	-0.127**	-0.125***	-0.0288	-0.0174
	(0.0567)	(0.0590)	(0.0576)	(0.0407)	(0.100)	(0.0351)
Age	-0.0114***	0.0514***	0.0152***	-0.00235	-0.0121***	-0.0361***
	(0.00208)	(0.00202)	(0.00196)	(0.00146)	(0.00340)	(0.00135)
Constant	-1.742***	-5.439***	-3.739***	-2.008***	-3.411***	0.880***
	(0.170)	(0.176)	(0.198)	(0.134)	(0.304)	(0.109)
Observations	19,171	19,171	19,171	19,171	19,171	19,171

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

1.7 Summary and Implications

The implications of this study are that many low-income citizens – particularly those experiencing acute stressors – do have a desire to engage in the political process. However, if the action is insufficiently easy or accessible when the time comes, the brain is wired to unconsciously prioritize short-term, immediate interests over the long-term benefits of political engagement. This leads to lower participation rates despite one's best intentions.

These findings lend support to the argument that low income citizens show lower rates of political participation not due to a deficit in civic-mindedness, but to the fact that any barriers to participation make it more likely that these people will prioritize immediate household concerns over long-term potential benefits of political engagement – even as stress increases the salience of these same political issues. Analysis of voting behavior not simply by who votes, but also by who *wants* to vote, provides evidence that people who are poor, anxious, and financially vulnerable are more likely to want to vote but then fail to do so, as compared to other U.S. citizens. Survey experiment results indicate that when political action is easy and immediate, poor and anxious people are *more* likely to act, in part due to increased issue salience.

Yet, at the same time, financial stress – whether induced experimentally or through daily realities – drives changes in cognition as well as preferences: even as anxious people consciously recognize that they need to think farther ahead in order to achieve change, they simultaneously exhibit shorter-term thinking in ways that diverge from the cognitive performance of wealthier cohorts.

Given the wealth of research in other disciplines on how stress affects risk-taking, executive control, patience, and a variety of other cognitive dimensions, a significant

opportunity exists to further explore how stress shapes political behavior, and through what mechanisms. This is particularly true when seeking to understand the role financial stress plays in driving differential rates of participation between rich and poor.

1.8 Chapter 1 Appendix

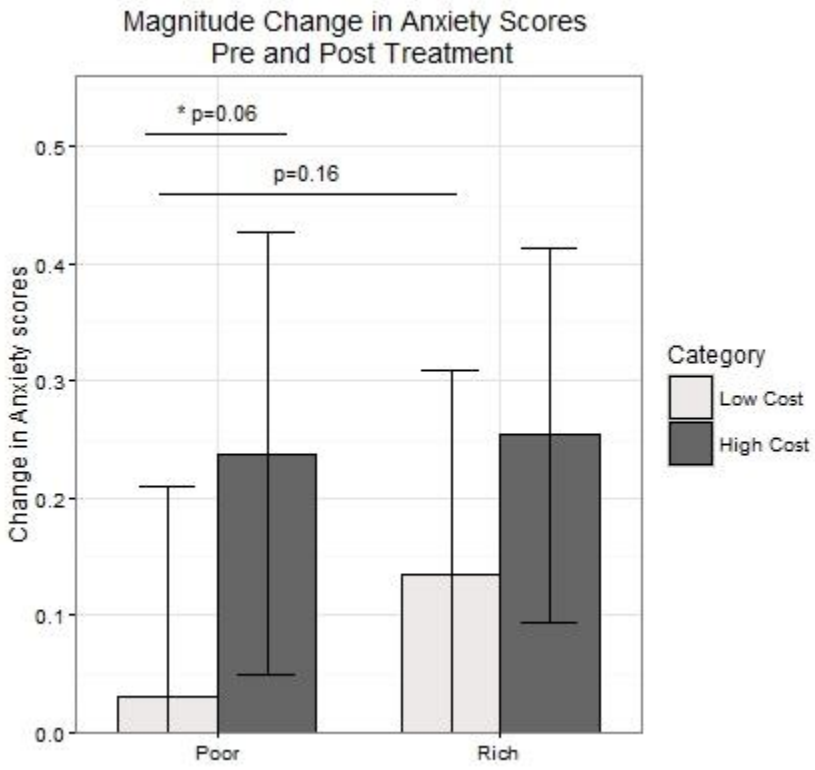

Figure 1.3: Treatment Effect of Financial Stress Primes

Table 1.6: Summary Statistics of Survey Respondents

	(1) Low SES, T=0 mean	sd	(2) Low SES, T=1 mean	sd	(3) High SES, T=0 mean	sd	(4) High SES, T=1 mean	sd
Household income	18066.91	8763.93	20061.27	8540.04	54901.58	19448.94	53627.99	18132.16
Female	0.51	0.50	0.66	0.48	0.43	0.50	0.54	0.50
Age	36.00	10.82	35.13	10.42	35.41	10.32	35.84	11.18
Student	0.13	0.33	0.12	0.33	0.10	0.31	0.10	0.30
Ideology	4.68	2.64	4.83	2.43	4.99	2.45	5.08	2.43
White	0.74	0.44	0.85	0.36	0.74	0.44	0.81	0.39
Issue salience (healthcare)	5.54	1.50	5.17	1.86	5.10	1.74	5.37	1.60
Baseline anxiety	2.31	1.19	2.48	1.29	2.03	1.10	2.10	1.03
Likelihood of acting	50.58	34.96	59.23	33.34	47.62	34.34	53.57	35.03
Signed online petition	0.38	0.49	0.48	0.50	0.36	0.48	0.37	0.49
Observations	149		126		115		134	

Table 1.7: Anxiety and Information Seeking

VARIABLES	(1) Anxiety & Bills	(2) Treat & Bills	(3) Combined	(4) Bills & Controls	(5) Full Model
Anxiety Change	0.268**		0.265**		0.246*
	(0.134)		(0.134)		(0.145)
Hard to Pay Bills	0.589**	0.480	0.490	0.453	0.447
	(0.284)	(0.408)	(0.409)	(0.420)	(0.423)
Treatment		-0.00648	-0.0343	0.111	0.0631
		(0.418)	(0.420)	(0.424)	(0.427)
Bills Hard X Treatment (total effect)		0.689*	0.641*	0.804**	0.737*
		(0.387)	(0.389)	(0.410)	(0.412)
Female				-0.173	-0.143
				(0.308)	(0.310)
Age				0.00620	0.00369
				(0.0148)	(0.0150)
Student				0.604	0.666
				(0.412)	(0.417)
Ideology				-0.0326	-0.0388
				(0.0594)	(0.0602)
White				-0.446	-0.458
				(0.343)	(0.346)
Angry Change					0.115
					(0.147)
Constant	-2.324***	-2.384***	-2.308***	-2.162***	-1.952***
	(0.210)	(0.290)	(0.292)	(0.675)	(0.686)
Observations	521	521	521	518	518

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

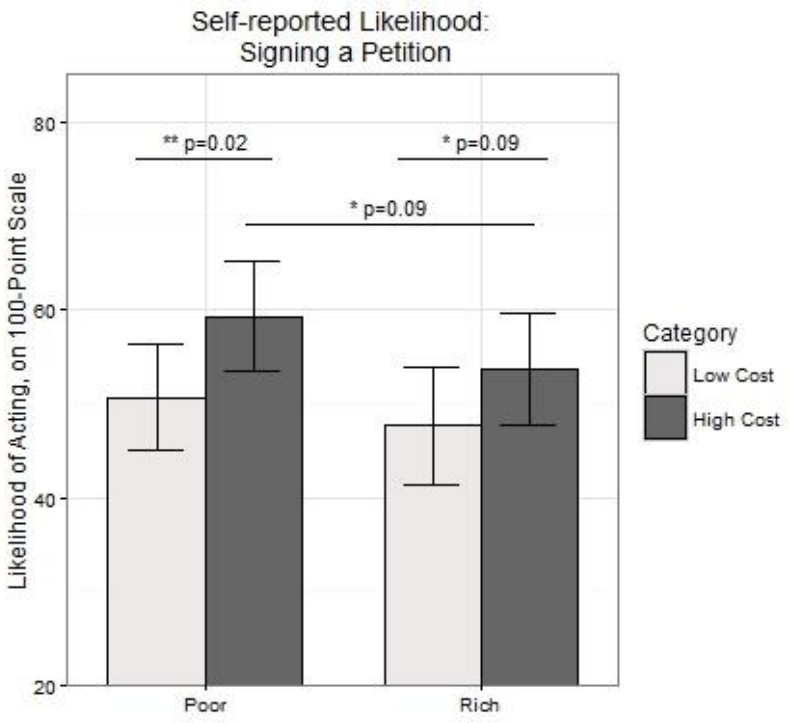

Figure 1.4: Self-Reported Likelihood of Signing a Petition

Table 1.8: Correlates of Intent/Voting Disconnect,
Verified Voter Data in 2012 ANES

	(1)	(2)	(3)	(4)
VARIABLES	1	2	3	4
Worried about finances	-0.356*	-0.343*	-0.437*	-0.377
	(0.203)	(0.200)	(0.241)	(0.251)
Household income (log)	0.495***	0.482***	0.467***	0.257**
	(0.0910)	(0.0903)	(0.123)	(0.122)
Anxious		-0.318*	-0.273	-0.116
		(0.186)	(0.228)	(0.248)
Female			0.289	0.209
			(0.234)	(0.247)
White			0.708***	0.441*
			(0.238)	(0.243)
Ideology			0.0211	-0.0332
			(0.0626)	(0.0706)
Employed			-0.224	0.0814
			(0.237)	(0.268)
Satisfied with life				0.0145
				(0.128)
Officials care				0.185
				(0.121)
Age				0.0456***
				(0.00846)
Veteran				-0.629
				(0.423)
Married				0.414
				(0.254)
College				0.662**
				(0.270)
Constant	-3.791***	-3.497***	-3.918***	-3.900***
	(0.919)	(0.919)	(1.260)	(1.206)
Observations	1,185	1,181	834	814

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1.9: Correlates of Registration/Voting Disconnect: 2014 Census Supplement

VARIABLES	(1) Full Universe	(2) Registered only
Household Income (10k)	-0.0109***	-0.0486***
	(0.00398)	(0.00447)
Employed	0.0526	-0.0200
	(0.0525)	(0.0605)
Female	0.0922***	-0.00885
	(0.0174)	(0.0188)
Married	-0.0436*	-0.238***
	(0.0229)	(0.0248)
US Born	-0.0810**	-0.412***
	(0.0386)	(0.0444)
White	0.00602	0.129***
	(0.0299)	(0.0343)
College	-0.292***	-0.624***
	(0.0243)	(0.0256)
Veteran	-0.0779**	-0.142***
	(0.0371)	(0.0397)
Years Living Here	-0.0260***	-0.106***
	(0.00604)	(0.00696)
Age	-0.0145***	-0.0266***
	(0.000665)	(0.000769)
Constant	-0.114	1.954***
	(0.0697)	(0.0830)
Observations	79,183	61,780

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1.10: Correlates of Voting Early

VARIABLES	(1)	(2)
Household Income (10k)	0.0172***	0.0214***
	(0.00470)	(0.00508)
Not College Grad		-0.112***
		(0.0305)
Unemployed		0.0471
		(0.0892)
Years Living Here		-0.0857***
		(0.00982)
White		0.00450
		(0.0456)
Married		-0.126***
		(0.0312)
US Born		-0.155***
		(0.0569)
Veteran		0.0998**
		(0.0411)
Female		0.100***
		(0.0214)
Age		0.0221***
		(0.00105)
Constant	-0.964***	-1.585***
	(0.0283)	(0.0922)
Observations	42,342	41,945

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1.11: Correlates of Voting by Mail

VARIABLES	(1)	(2)
Household Income (10k)	0.0201***	0.0230***
	(0.00524)	(0.00561)
Unemployed		0.125
		(0.0982)
Not College Grad		-0.0558
		(0.0341)
Years Living Here		-0.0864***
		(0.0108)
White		0.351***
		(0.0529)
Married		-0.177***
		(0.0345)
US Born		-0.433***
		(0.0598)
Veteran		0.00180
		(0.0459)
Female		0.0877***
		(0.0232)
Age		0.0185***
		(0.00119)
Constant	-1.429***	-1.877***
	(0.0316)	(0.103)
Observations	42,399	41,986

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 1.12: Qualitative Examples of Responses to Survey Primes

HIGH COST, LOW INCOME
Devastated. I need my car and money is in VERY short supply right now. Even the monthly payments would break me.
I would feel very crushed. That would be a huge expense for me, and it would be very difficult to cover. I would wonder why this had to happen to me. I would feel like the world is bearing down on me.
Extremely overwhelmed. I personally don't have that kind of money just lying around.
I would feel devastated. Christmas is right around the corner and I really wouldn't want to deal with the unforeseen expense. I feel like we've finally gotten a handle on our budget so of course something like this would happen now. Maybe we are just never meant to get ahead.
I'd feel upset that it's so much money. I'd wonder what I had done to deserve it… I'd wonder how much I would have to sacrifice.
I would feel scared and helpless.
LOW COST, LOW INCOME
I would feel a little downhearted. Unexpected expenses are never fun to deal with. I would try to handle it as best I could and talk it out with my partner. I would feel it was a bad situation but not one I could not handle.
This would be an easy decision for me to make. Assuming I have my current savings, the cost of the repair would be a minimal hit.
It would be nuisance. It would be necessary to fix, though. I wouldn't like it, but I would do it. It would a slight hardship, but not terrible.
I would feel distressed. However, this sort of thing is nothing new to me. These kinds of expenses happen all the time and I can never afford them. It would be a big pain but nothing I can't handle.
I don't think $160 is a huge amount of money for a car repair, so I would pay for it in cash.
I'm irked that my car is failing, but it's really not too much cash, so I'm happy it's not a lot worse. I want to deal with it and move on so I don't have to worry.

Table 1.12: Qualitative Examples of Responses to Survey Primes (continued)

LOW COST, HIGH INCOME
I'm disappointed at this unexpected cost. Hopefully I've saved some money in an emergency fund to handle these sorts of issues. If I have, then I'm disappointed but feel prepared to deal with the problem.
Fortunately for me I have the money to pay cash for this without emptying my savings account. Even though I have the money to pay for it, it is still upsetting.
I would pay the full amount in cash. It would not require me to liquidate savings. I would be broke afterwards, but that's alright. I wouldn't risk paying more.
I actually just had this happen to me. I was quite upset; it's not that I couldn't cover the cost. It's the fact that I prefer to have that back up saving. I know car repairs are important, but what if something even worse happens?
I would be a little upset because it is an unanticipated expense, but one I could afford if I tightened the budget in other areas.
…it wouldn't be that upsetting. When you own a car, it's a given that you may have to spend money on repairs once in a while. It would be a little of a hardship to pay for the repairs. However, we always manage to get by and I wouldn't lose a lot of sleep over the matter.
HIGH COST, HIGH INCOME
I would be frustrated, but would understand the necessity of the repairs.
I would feel very disappointed. This unexpected cost would not only make me anxious about other expenses, but it would cause me to worry about taking away from our savings or the future of our two children.
I would pay the full amount. Paying the full amount may take alot at first but it will save me money over time. I could take that extra money and apply it to something else.
I would feel frustrated this happened. I would wonder how I am going to come up with the money. I'd probably shop around and see if there is a better deal somewhere. This would definitely ruin my week.
It would be very frustrating to have the unexpected cost, but it wouldn't be that upsetting. When you own a car, it's a given that you may have to spend money on repairs once in a while. It would be a little of a hardship to pay for the repairs. However, we always manage to get by and I wouldn't lose a lot of sleep over the matter.
Money's a little bit tight right now, so the additional expense would be annoying, and might mean that we'd have to do without some other things.

Survey Primes:

(Scenario 1)

A scenario: Imagine that your car is having some trouble, and requires a [$1,600 / $160] service. Unfortunately, your auto insurance will cover only 10% of this cost. You now need to decide the following:

1. Pay the full amount in cash. Would this require liquidating savings? How would you go about it?

2. Take out a loan, which you can pay back in monthly installments. A typical such loan may require monthly payments of roughly [$150 / $15] a month for 12 months, which would amount to about [$1800 / $180] total.

3. Take a chance, forego the service, and hope that the car lasts for a while longer. Of course, this leaves open the possibility of breakdown, or even greater expenses in the long run.

In deciding which option you will choose, consider: How would you go about making this decision? Would it be an easy or a difficult decision for you to make?

You will be asked for your final choice in a minute (after a few other questions). For now, write four sentences about your reaction to this unexpected cost. How would you feel?

(Scenario 2)

Another scenario: Suppose you get a call saying there's been a family emergency, and that your support is needed. Your expenses if you decide to become involved would be [$1300 / $130]. What do you do?

1. Pay the full amount in cash, which would cost you [$1300 / $130]. (How would you come up with the money?)

2. Take out a loan, which you can pay back in monthly installments. A typical such loan may require monthly payments of roughly [$140 / $14] a month for 12 months, which would amount to [$1700 / $170] total.

3. Tell your family you can't support them, and face the consequences. In deciding which option you will choose, consider: How would you go about making this decision? How would you feel?

(Scenario 3)

Another scenario: Imagine that you need a medical procedure that is not fully covered by insurance. You will need to pay [$1,500 / $150] of the cost. You now need to decide the following:

1. Pay the full amount in cash, for a total cost of [$1,500 / $150]. (Would this require liquidating savings? How would you go about it?)

2. Take out a loan, which you can pay back in monthly installments. A typical such loan may require monthly payments of roughly [$150 / $15] a month for 12 months, which would amount to [$1800 / $180] total.

3. Take a chance, forego the procedure, and hope that you stay healthy. Of course, this leaves open the possibility of more serious health effects and greater expenses in the long run.

In deciding which option you will choose, consider: How would you go about making this decision? Would it be an easy or a difficult decision for you to make?

You will be asked for your final choice in a minute (after a few other questions). For now, write four sentences about your reaction to this unexpected cost. How would you feel?

Political Action Questions

Q34: **In recent months...**

The President has been talking about **raising the national minimum wage.**

In light of the current debate on this issue and the possibility that additional pressure could cause government policy to change, **how likely are you to do the following?**

[Slider: Very Unlikely – Very Likely]

_____ Sign an online petition

_____ Call or email my Congressperson

_____ Attend a rally designed to draw attention to this issue

_____ Tell friends, family, or coworkers to take action on this issue

_____ Participate in a community taskforce to address this issue

Q35: Change.org is a website that allows citizens to sign online petitions pressuring the President and Congress on key issues. **Currently, there are both petitions that support or oppose an increase in the federal minimum wage.**

You can take action on this issue by **signing the online petition**. Participation takes **30 seconds** and is **optional** (will not affect your pay). To sign, just click "yes" and follow the link provided on the next page.

Note: Any information you provide to Change.org is separate from this survey and cannot ever be seen or accessed by us. Click here for more information on Change.org's privacy policy.

Do you want to take action on this issue?

□ Yes, I want to support raising the minimum wage

□ Yes, I want to oppose raising the minimum wage

□ No

Q36

Overall, which matters more: The long-term effects of a minimum wage increase on your household, or your household's current situation?

[10-point scale: Current Situation – Long-Term Effects]

Q37

Do you want more information about this issue?

□ Yes

□ No

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Chapter 2: Poverty and Getting Out the Vote – Insights from a Field Experiment

2.1 Abstract

Do Get out the Vote efforts in the U.S. reduce the gap in voting rates consistently observed between the rich and poor? Poverty increases financial stress, and the downstream cognitive burden of stress affects citizens' ability to follow through on their intentions to vote. Get out the Vote (GOTV) efforts, therefore, should serve as a reminder to act on this intention, increasing turnout disproportionately among the poor. These reminders will only increase turnout, though, when voting is a time-specific action and postponement is not an option. This paper leverages data from a 2008 field experiment with quasi-random assignment of voting method to test how turnout among the poor is affected by GOTV efforts under two voting conditions: vote by mail (VBM) and in-person voting. Results first show that, absent GOTV efforts, VBM increases participation more among poor precincts. Secondly, aggregate GOTV effects are driven by the differential success of outreach in poor and income-volatile neighborhoods. However, GOTV is only effective when voting is in-person; canvassing appears to have no or even negative effects when citizens are assigned to vote by mail. These findings are consistent with the theory that the cognitive load of financial stress decreases participation rates, while the findings do not support alternative mechanisms for the participation gap, such as political knowledge, efficacy, enthusiasm, or time constraints.

2.2 Introduction

Get out the Vote (GOTV) experiments have demonstrated that canvassing significantly increases voter turnout (Green, Gerber, and Nickerson 2003). At the same time, decades of U.S. voting data show that the poor turn out at persistently lower rates than

wealthier cohorts (Rosenstone 1982). Due to the limited data linked to voter records, little remains known about how GOTV affects citizens at different socio-economic levels. Recent research has sought to understand how GOTV effects vary by one's propensity to vote; however, meta-studies have presented mixed findings (Arceneaux and Nickerson 2009; Enos, Fowler, and Vavreck 2013). Furthermore, because propensity to vote is only a rough proxy for underlying variables such as (but not limited to) socio-economic status, much remains unknown about how GOTV effects vary by poverty level and by voting method.

Structural barriers alone are insufficient to explain why we observe lower participation among lower income cohorts. In fact, many efforts to reduce structural barriers to participation – including longer voting hours, early voting, and voting by mail – have been shown to increase socio-economic disparities at the polls, rather than shrinking the participation gap (Highton 2004; Berinsky 2005).

This paper considers how financial stress may affect political participation, and what policy interventions may most effectively close the participation gap between rich and poor. Financial stress affects cognition by capturing attention and taxing mental bandwidth (Mani et al. 2013), and downstream effects of financial anxiety on decision-making include a greater likelihood of forgetting and indefinite postponing due to present bias (Shah et al. 2012). This leads to a Good Intention Gap in political participation: the financially vulnerable may want to take action, but if opportunities to act are not immediate, they are more likely to postpone action and ultimately forget to act before the deadline (see Chapter 1).

While the Good Intention Gap has been explored in the lab and in national survey data, a voter mobilization experiment offers the opportunity to test theories of cognitive load against other theories of voter (non)participation. The following paper reanalyzes data from a

2008 Get out the Vote experiment in San Diego County to answer the question of how GOTV effects vary by income, and whether effects differ by method of voting.

The paper makes a number of contributions to our understanding of how poverty intersects with voter mobilization efforts and method of voting. First, it finds that the significant overall GOTV effect is driven by large effects among people living in areas with high income insecurity; the GOTV effort had no significant effects in high income areas. Secondly, the paper shows that, all else equal, people living in poor areas are more likely to vote if they are required to vote by mail rather than in person. Thirdly, the paper shows that GOTV effects, while significant among the poor, vary dramatically by method of voting. GOTV increases turnout among poor voters when voting is in person, but GOTV efforts in vote-by-mail (VBM) precincts have no effect or may even demobilize poor voters. This differential pattern of turnout by voting method supports a theory of participation affected by financial stress and cognitive load; alternative theories explaining GOTV effects and differential levels of participation are not supported by the data.

2.3 Financial Stress and Cognitive Load

The increased cognitive load caused by financial stress makes it harder for people to act in their long-term self-interest (Mullainathan and Shafir 2013). This disconnect between intent and action has been explored in regards to cravings and desires (Loewenstein 1996), financial decisions (Balakrishnan, Haushofer, and Jakiela 2015), and protective health behaviors (Ferrer, Portnoy, and Klein 2013). This same intention-action gap should exist in political participation as well (Hill 2016; Denny 2017).

Based on existing knowledge of the cognitive effects of stress, heightened financial anxiety should correlate both with higher likelihood of forgetting to take political action as

well as an increased propensity to postpone political participation. Stress induces deliberative rather than automatic processing of information (Kahneman 2013). This deliberative system (or "System II") has a finite capacity for considering information. Furthermore, anxiety increases the amount of mental bandwidth devoted to the source of stress, leaving less mental bandwidth available for other tasks. Thus, forgetfulness is a logical extension of cognitive tunneling, a consequence of the taxed mental bandwidth observed when stress is induced (Carlock 2011). As the source of stress is magnified in people's minds, their ability to remember (let alone act upon) long-term interests diminishes (Vohs 2013). For this reason, reminders should help people with higher cognitive loads remember and act upon their preexisting interests.

In addition, studies have repeatedly shown that stress and poverty – even when experimentally induced – correlate with greater impulsivity and a preference for short-term, smaller rewards over larger longer-term payoffs. Another way to conceptualize this is as a *present bias preference* in decision-making. When deciding to take political action, individuals weigh the cumulative utility of acting for all future time periods against the cumulative utility of not acting in the present period. If the utility of future time periods is discounted by a factor δ, as predicted by the Discounted Utility Model (1), people's preferences are said to be "time consistent". That is, preference for tomorrow's future is the same as preference for today's future.

$$U_t = u_t + \delta u_{t+1} + \delta^2 u_{t+2} + \delta^3 u_{t+3} + \ldots \delta^{T-t} u_T \qquad \textbf{(1)}$$

However, short-term impatience and procrastination – both hallmarks of anxiety – may lead to behaviors that violate the Discounted Utility Model and generate time-

inconsistent preferences. If anxiety magnifies the importance of needs in the present time period, all other time periods are discounted by a second parameter β (2). Thus, if utility is maximized by taking action tomorrow, when tomorrow comes one's utility is again maximized by postponing and taking action the next day. Like the smoker who always intends to quit tomorrow, these citizens under high stress may intend to participate but will keep postponing until it is too late.

$$U_t = u_t + \beta (\delta u_{t+1} + \delta^2 u_{t+2} + \delta^3 u_{t+3} + \dots \delta^{T-t} u_T) \qquad \textbf{(2)}$$

In situations without deadlines for action (petitioning the government, joining a social movement, etc.), present bias would cause indefinite postponement of action. In situations like early voting where there is a prolonged window for action, the cost of voting may be lower, but people with present bias will also be more likely to postpone action, running the risk of ultimately forgetting when the last opportunity for participation arrives.

2.4 Expectations

Cognitive load and present bias both have testable implications for political participation. First, all else equal, methods of voting that reduce costs of participation should increase turnout among the resource-constrained. As discussed in Chapter 1, poverty not only is the state of being financially poor; it also means limited – and often overtaxed – cognitive resources available for remembering and executing tasks. Furthermore, time for any given task is arguably more limited (and therefore more costly) for the poor. In totality, limited financial, cognitive, and temporal resources can make political participation relatively costlier for people who are poor. Thus, making voting easier (less costly) through a vote-by-mail

option – versus voting in person – should increase turnout among the poor more than among the rich.[1]

H_1: Voting by mail should drive higher turnout among poor citizens, relative to voting in person.

Secondly, Get out the Vote efforts serve as a reminder to participate in the upcoming election. If financial stress increases the likelihood one will forget to vote, and canvassing serves as a critical reminder to participate, then a GOTV campaign should be more effective among people who are poor.

However, a theory of cognitive load also suggests that reminders to vote will only be effective when the opportunity to act is discrete (a specific point in time). If citizens instead are told that they have a broad window of time to participate, canvassing may actually reinforce one's predisposition toward indefinite postponement. Postponement increases the chance that citizens ultimately forget to vote (especially in situations of higher stress and cognitive load), which would negate any mobilization effects from canvassing.[2]

H_2: GOTV efforts will increase voter turnout among the poor when voting is on a specific voting date (voting in person).

H3: GOTV will decrease voter turnout among the poor when there is a broad time window for voting (voting by mail).

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[1] These theoretically-motivated expectations come in the wake of studies that have found mixed (Neeley and Richardson 2001) or even opposite (Karp and Banducci 2000) VBM turnout effects by income.

[2] See Bedolla and Michelson (2012): 69-77

Alternative theories for why GOTV works (in general, and among low-income citizens specifically) are plentiful. Yet, these alternative hypotheses suggest alternative patterns of behavior that can also be tested in the field. First, canvassing may impart critical knowledge about how to participate in the political system (education). Secondly, canvassing also implicitly or explicitly may communicate to potential voters that their voice matters, increasing their motivation to participate (efficacy). Thirdly, canvassing may increase enthusiasm in the election. For each of these theories, one would hypothesize that GOTV efforts should increase turnout equally *regardless of voting method*, since GOTV is changing voter intent (rather than access or ability to follow through on intent). In addition, if structural barriers were the sole cause of participation gaps between rich and poor, one would expect voting by mail to consistently lead to higher turnout, regardless of GOTV exposure. Only the theory of cognitive load predicts differential GOTV responses based on voting method.

2.5 Methods

The 2008 GOTV experiment run by Arceneaux, Kousser and Mullin (2012) leverages as-if random assignment of in-person voting and voting by mail to test the effects of voter mobilization efforts on turnout, given two different methods of voting. California state law requires that precincts with fewer than 250 voters must vote by mail. Because of fluctuations in precinct population, precincts can vary in voting method across elections. Random variation affects which side of the cutoff a precinct is on in a given election, leading to as-if random assignment of voting method.

After excluding extremely small precincts (under 75 registered voters) and extremely rural precincts, there were 101 vote by mail precincts in San Diego County. These VBM precincts were each matched with their nearest neighbor precinct using American Community

Survey demographic statistics. Then, 50 precinct pairs were randomly selected to receive canvassing for the GOTV study. Random selection was stratified by population density to minimize the risk that turnout differences between urban and suburban areas would drive observed results.

Selected precincts were canvassed in the nine days leading up to the 2008 general election (October 25 - November 3).[3] Canvassing scripts were designed to be as similar as possible for in-person and VBM precincts.[4] Speaking with the registered voter or household member constituted a successful "contact"; residences were no contact was made received a postcard with similar voting information. Contact rates were not statistically different between in-person and VBM precincts (13.75% in traditional precincts and 13.86% in VBM precincts). Similarity in contact rates between the two types of precincts suggests that nearest neighbor matching was effective, and that we are unlikely to see results biased due to differential contact rates (or underlying sources of differential availability) between VBM and traditional precincts.

In general, GOTV studies have been limited in their ability to assess what subgroups of a population are particularly responsive to canvassing efforts. This is due to limited public data associated with each voter file. Relatively speaking, the data available in the San Diego

[3] The theory presented in this paper suggests that houses contacted earlier in the canvassing period would show lower voting rates (especially in VBM precincts) compared to canvassing conducted closer to the election. This would be consistent with a hypothesis that stress increases the likelihood of forgetting, and that individuals under high stress will be more likely to postpone voting if they can (impacting VBM rates). However, the initial study did not collect data on the date that each registrant was canvassed, so this hypothesis cannot be directly tested with the current study. Analyzing GOTV effects by date is a productive future line of inquiry.

[4] **Vote in Person postcard language:** "DO YOU KNOW WHERE TO VOTE THIS ELECTION? // Polling locations change from election to election. You should check to see where your polling location is before you go vote on Tuesday, November 4th. // There are two ways you can find out where your poll is located… // Remember to Vote on November 4th!" **Vote by Mail postcard language:** YOU MUST VOTE BY MAIL IN THIS ELECTION! // Your voting district was not assigned a polling location this year. You should have received a mail-in ballot from the Registrar of Voters. You must vote on this ballot. // There are two ways you can send in your ballot… // But remember you MUST use the mail-in ballot sent to you by the Registrar of Voters, and remember to vote by November 4th!"

GOTV study discussed here are relatively rich: information available for each registrant includes voting history (for 5 local and primary elections), major party affiliation, age, gender, and certain precinct-level demographics such as percent black and percent Latino voters. Following Arceneaux and Nickerson (2009), these variables are used to create a predictive model of voting propensity. While voter propensity has been found to correlate with socio-economic variables (Enos, Fowler, and Vavreck 2013), the use of voting propensity as the main characteristic for understanding GOTV efficacy still runs the risk of being tautological (or at least unable to move the discourse beyond a basic model of habitual voting): voters are more likely to vote because they were more likely to vote in the past. While voting propensity is useful for understanding who turns out for what kinds of elections, this measure still occludes the underlying factors that drive voting propensity – and our understanding of the mechanisms by which people do or do not turn out to vote.

I measure socio-economic status more directly to test how poverty and economic vulnerability shape turnout under different voting methods, and to test how GOTV efforts may have differential effects in low-income areas depending on voting method. The 2013 American Community Survey includes 5-year estimates of relevant socio-economic indicators at the census block group level: median household income, percentage of households in poverty[5], average percent of income spent on rent[6], and the Gini coefficient. Household income is a commonly used measure of socioeconomic well-being and therefore can be used to compare results with other studies. Percent of households in poverty and average percent of income spent on rent are variables that more clearly operationalize the concept of financial

[5] Data actually provides an estimate of how many households in the census block group are in poverty, and there is also a count of total households in the census block group. This allows for easy calculation of the local poverty rate.

[6] ACS data for rent as percent of income is truncated; data have an upper bound of "50% or more". San Diego is one of the most expensive housing markets in the country, and 15% of census block groups analyzed in this study fall into the 50+% category. We lose important variation at the upper end of the distribution (and distribution is no longer normal) when the measure is truncated arbitrarily at 50%.

stress, given that people who are low income may not be struggling financially, but people who are officially living in poverty or who are struggling to earn enough to cover basic expenses are more likely to experience both acute and chronic financial stress. The local Gini coefficient measures the amount of inequality in the census block group. The theories presented here expect that one's absolute level of financial stress determines behavior, rather than ones status relative to one's neighbors. The Gini index will be used to test this assumption.

The census block group is the smallest unit of analysis in the US census and includes approximately 600 to 3000 people.[7] This paper assumes that while there will still be individual-level variation in socioeconomic indicators not captured in these data, averages at the census block group level provide an approximation for individual-level values. This is because at the micro level, neighborhoods tend to be fairly homogenous. Furthermore, because average values reduce variation in the independent variable, we would expect the use of local averages to increase confidence intervals and bias against finding significant results.

I used the Census Geocoder feature[8] to match addresses in the GOTV study with the corresponding census block group. After registrant addresses were matched with the corresponding census block group, canvassing and turnout data were merged with census block group-level socioeconomic indicators. Of the 56,098 registered voters included in the treatment and control groups, 9638 did not have addresses that could be matched to physical locations. This primarily includes voters using P.O. Boxes or military addresses as their registration address. 43% of excluded registrants are in treated precincts, while 57% are in control precincts, a difference that is not statistically significant using a chi-squared test. Therefore, while certain types of people may be systematically excluded from the following

[7] See: https://www.census.gov/geo/reference/gtc/gtc_bg.html
[8] Available at: https://www.census.gov/geo/maps-data/data/geocoder.html

analysis because they are more likely to have these types of addresses (poor people with P.O. Boxes, military, etc.), this does not affect the internal validity of the study: treatment is randomized, and omissions are distributed relatively evenly between treatment and control groups. As the analysis below shows, omitting these voters does not substantially affect the original paper's main findings (Table 2.1).

Is there value in matching registered voters with income data to assess GOTV effects by socioeconomic group, rather than simply using voting propensity as a proxy for underlying determinants of turnout? Conceptually and statistically, the answer is yes. Theory predicts that the state of being poor affects behavior in ways that affect responsiveness to different kinds of GOTV initiatives. Furthermore, the correlation between one's propensity score and economic indicators is low – the correlation is less than 0.16 for local median household income, percent of neighborhood in poverty, and average percent of income spent on rent. This suggests that voter propensity scores do not map cleanly onto socioeconomic factors, and thus using these scores as a proxy for underlying determinants of behavior may mask differential, income-driven responses to GOTV initiatives.

2.6 Results

In both the current analysis and the original study, we look at both intent to treat (ITT) and average treatment on the treated (ATT) effects. The ITT shows the precinct-level effect of the treatment, regardless of whether registered voters received direct contact or not. This value is the conservative estimate of how large an impact the experiment had and is perhaps the most policy-relevant, as it shows how voter turnout is affected overall by voter outreach initiatives given that these programs are not able to reach everyone. The ATT shows how much an effect turnout has on canvassing specifically for people whose households received

face-to-face GOTV contact. While the types of people available (and receptive) to contact are likely systematically different from the population as a whole, it is valuable to know how much their behavior changed as a result of contact. The ATT is equal to the ITT divided by the compliance – or contact – rate (here, about 13.8%). We use a two-stage instrumental variable approach to calculate the ATT with appropriate confidence intervals.

The original analysis of this San Diego GOTV experiment used a linear probability model both for the ITT analysis and two-stage ATT analysis. I obtain similar coefficients by running a linear probability model (Table 2.1); slight differences in the coefficients are due to dropped observations from non-San Diego addresses (in the simple models) and incomplete voter history (in the full models). For further analysis, I deviate from the original paper and use a probit model (and IV probit in the two-stage model), since the dependent variable (turnout) is binary and thus more suited to a probit estimator.

The original study finds that vote by mail precincts appear to have a marginally higher turnout rate. Controlling for past voting behavior and basic demographic variables, canvassing significantly increases turnout, but only in precincts where voting occurs in person. The effect sizes at the upper bound of treatment affects observed across a range of GOTV experiments (Gerber and Green 2008). The original experiment finds that canvassing does not significantly increase turnout when voting occurs by mail.

Table 2.1: ATT and ITT Effects of GOTV (Replication)

VARIABLES	(1) ITT Simple	(2) ITT Full	(3) ATT Simple	(4) ATT Full
Treated Precinct	0.0151	0.0119**	0.152	0.112**
	(0.0165)	(0.00564)	(0.156)	(0.0502)
Vote by Mail Precinct	-5.22e-05	0.0152*	0.000135	0.0152*
	(0.0235)	(0.00808)	(0.0236)	(0.00810)
VBM X Treated	-0.00561	-0.0200*	-0.0615	-0.174*
	(0.0287)	(0.0115)	(0.260)	(0.0940)
Vote 2008 pres. primary		0.159***		0.158***
		(0.00639)		(0.00630)
Vote 2006 gen. election		0.128***		0.128***
		(0.00585)		(0.00594)
Vote 2006 gub. primary		0.00315		0.00357
		(0.00358)		(0.00364)
Vote 2005 special election		0.0529***		0.0524***
		(0.00467)		(0.00464)
Female		0.0226***		0.0227***
		(0.00285)		(0.00288)
Major party registrant		0.00309		0.00335
		(0.00397)		(0.00392)
Age		0.00882***		0.00880***
		(0.000660)		(0.000669)
Age^2		-8.74e-05***		-8.70e-05***
		(5.73e-06)		(5.86e-06)
Newly registered		0.0926***		0.0927***
		(0.00678)		(0.00672)
Permanent absentee voter		0.0751***		0.0754***
		(0.00403)		(0.00407)
% Black in precinct		-0.00166***		-0.00191***
		(0.000489)		(0.000501)
% Latino in precinct		-0.00115***		-0.00113***
		(0.000187)		(0.000183)
Strata	-0.0345	-0.0273***		-0.0286***
	(0.0238)	(0.00949)		(0.0104)
Constant	0.874***	0.444***	0.836***	0.447***
	(0.0296)	(0.0217)	(0.0135)	(0.0218)
Observations	55,636	37,446	55,636	37,446
R-squared	0.001	0.232		

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

To test how poverty affects turnout by voting method and GOTV canvassing, I analyze the results again by income level. This in essence creates a three-way interaction between voting method, GOTV treatment, and socioeconomic status. First, I split the sample into high and low income cohorts and calculate the ITT and ATT for each group separately. High and low income categories were determined by calculating the effective household income (dividing household income by the square root of household size (Mani et al. 2013)) and then splitting the sample at the median value of $44,844. I subsequently present marginal effects of treatment and voting conditions across all income levels.

The current San Diego study leverages as-if random assignment of VBM precincts to control for unobserved factors that in other situations may influence whether a precinct (or an individual) choses to vote by mail, leading to non-random assignment of VBM or in-person voting. Under as-if random assignment of voting method in this study (holding all else constant), voting by mail – in the absence of GOTV canvassing – significantly increases turnout among poor households, while there is no discernible VBM effect (either in magnitude or significance) for higher income households (Table 2.2, Columns 1-2). The effect of voting by mail is statistically significant for household incomes under $45,000. VBM causes a 2-point higher turnout rate for households with an effective income of $40,000 (Figure 1), and the effect increases to almost 4 points for households with incomes of $20,000 or less. These results add complexity to previous studies which find that voting by mail increased turnout among high propensity and higher income voters in the 1980s and 1990s (Magleby 1987; Karp and Banducci 2000).

Table 2.2: ATT and ITT Effects of GOTV, by Income Level

VARIABLES	(1) ITT: Low SES	(2) ITT: High SES	(3) ATT: Low SES	(4) ATT: High SES
Treated Precinct	0.0711**	0.0512	0.765**	0.418
	(0.0339)	(0.0481)	(0.383)	(0.341)
Vote by Mail	0.182***	-0.0106	0.173***	-0.0110
	(0.0595)	(0.0767)	(0.0558)	(0.0761)
VBM X Treated	-0.191**	-0.0654	-1.848*	-0.473
	(0.0918)	(0.103)	(0.968)	(0.609)
Vote 2008 pres. Primary	0.870***	0.786***	0.842***	0.780***
	(0.0394)	(0.0356)	(0.0444)	(0.0342)
Vote 2006 gen. election	0.573***	0.603***	0.567***	0.600***
	(0.0364)	(0.0439)	(0.0356)	(0.0441)
Vote 2006 gub. Primary	0.220***	0.157***	0.224***	0.156***
	(0.0459)	(0.0582)	(0.0452)	(0.0586)
Vote 2005 special election	0.342***	0.225***	0.343***	0.221***
	(0.0331)	(0.0449)	(0.0327)	(0.0447)
Female	0.108***	0.155***	0.106***	0.155***
	(0.0242)	(0.0289)	(0.0245)	(0.0292)
Major party registrant	0.0119	0.0323	0.0141	0.0330
	(0.0296)	(0.0308)	(0.0296)	(0.0309)
Age	0.0358***	0.0521***	0.0348***	0.0522***
	(0.00418)	(0.00476)	(0.00425)	(0.00476)
Age^2	-0.000376***	-0.000530***	-0.000365***	-0.000531***
	(4.02e-05)	(4.62e-05)	(4.06e-05)	(4.62e-05)
Newly registered	0.440***	0.450***	0.439***	0.448***
	(0.0621)	(0.0674)	(0.0615)	(0.0681)
Permanent absentee voter	0.459***	0.525***	0.449***	0.526***
	(0.0384)	(0.0416)	(0.0371)	(0.0421)
% black in precinct	-0.00640***	-0.0333**	-0.00890***	-0.0319**
	(0.00208)	(0.0146)	(0.00240)	(0.0148)
% Latino in precinct	-0.00445***	-0.00281	-0.00395***	-0.00338
	(0.000706)	(0.00205)	(0.000818)	(0.00223)
Strata	-0.125*	-0.169	-0.156*	-0.153
	(0.0746)	(0.139)	(0.0889)	(0.129)
Constant	-0.567***	-0.755***	-0.518***	-0.768***
	(0.133)	(0.184)	(0.143)	(0.178)
Observations	15,945	17,094	15,945	17,094

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

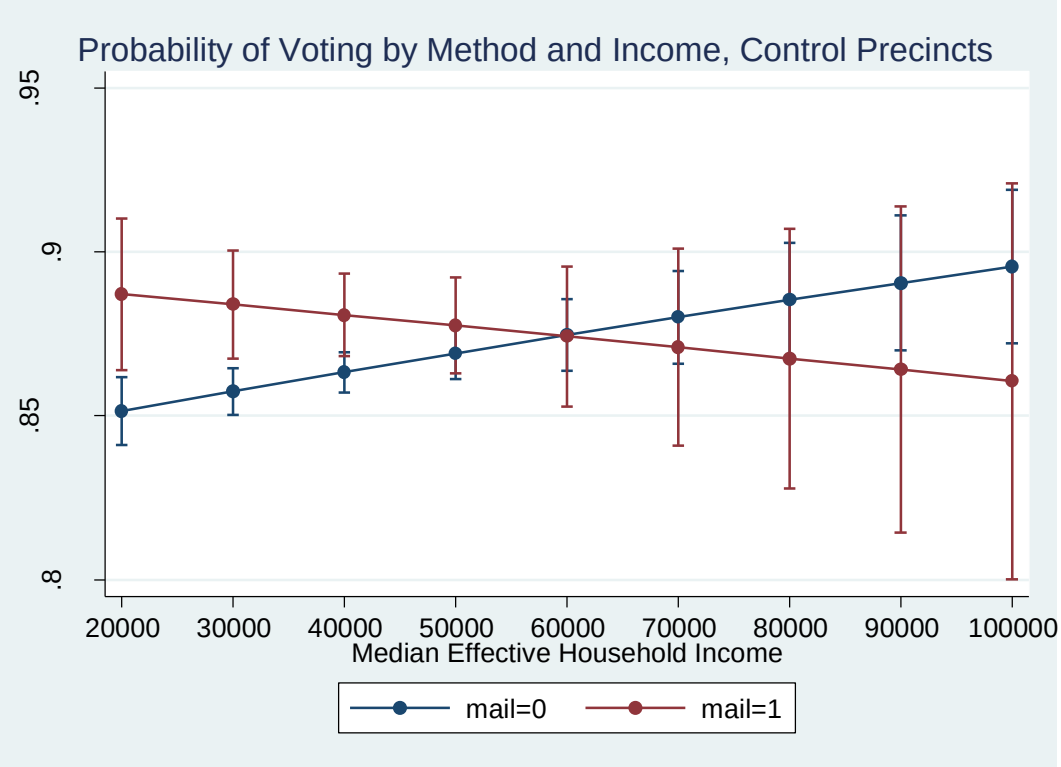

Figure 2.1: Probability of Voting by Method and Income (in Untreated Precincts), ITT

Theories of scarcity also predict that people who are poor will have less bandwidth for remembering to vote, and they will be more likely to postpone voting if possible due to greater present bias. Table 2.2 finds results consistent with these expectations as well. The overall treatment effect of canvassing in traditional in-person voting precincts is driven by larger treatment effects among the poor. While the difference in effect size for high and low income cohorts is not statistically significant, the magnitude of the GOTV ATT effect where in-person voting occurs is nearly twice as large for voters in low income areas.

This finding – that in-person reminders to vote increase turnout among the poor – is consistent with theories outlined above: reminders matter. At the same time, general GOTV

mobilization effects could also be explained by number of alternative hypotheses, such as education, promoting a sense of civic duty, empowerment, external efficacy, enthusiasm, etc. However, if any of these alternative mechanisms are primarily responsible for increasing turnout, we would expect to see the same boost in turnout, regardless of voting method. Instead, if poverty affects turnout via a mechanism of taxed cognitive resources, we would expect to see different effects by voting method. Reminders of concrete deadlines will increase turnout, but reminders that one can vote *anytime in the next 3-9 days* will cause procrastination that ultimately can result in forgetting to vote on time.

Table 2.2 results find suggestive evidence for the theory that financial stress taxes cognitive resources, affecting political behavior. The interaction between canvassing treatment and VBM precincts is negative with 90% significance. Again, while the confidence intervals overlap for the coefficients in the high and low income cohorts, the magnitude of the ITT effect for the low income cohort is three times as large as for the high income group. Practically speaking, forgetfulness may affect everyone, but these effects are much more pronounced among the poor. This large effect among poor registered voters appears to be driving the statistical significance in the aggregate results.

Overall, we see that GOTV efforts in traditional precincts are more effective at lower income levels, while GOTV efforts in VBM precincts does not show any turnout boost – and may even be demobilizing, especially in lower income areas (Figure 3). The total ATT effect of GOTV for low income voters in VBM precincts is significantly less than the effect in traditional precincts. Moreover, while only significant at 85%, the GOTV treatment interacted with VBM appears suggests a negative combined effect for the low income cohort, while there is no overall effect (in significance or point-estimate) for GOTV interacted with VBM in the high income cohort. In sum, GOTV is mobilizing for poor people when voting occurs in

person, but reminders may be demobilizing when voting is by mail. Further study is warranted to determine whether this demobilizing effect is linked to the nature of voting by mail specifically, or whether reminders to vote may be less effective anytime that postponing is possible (such as in-person early voting).

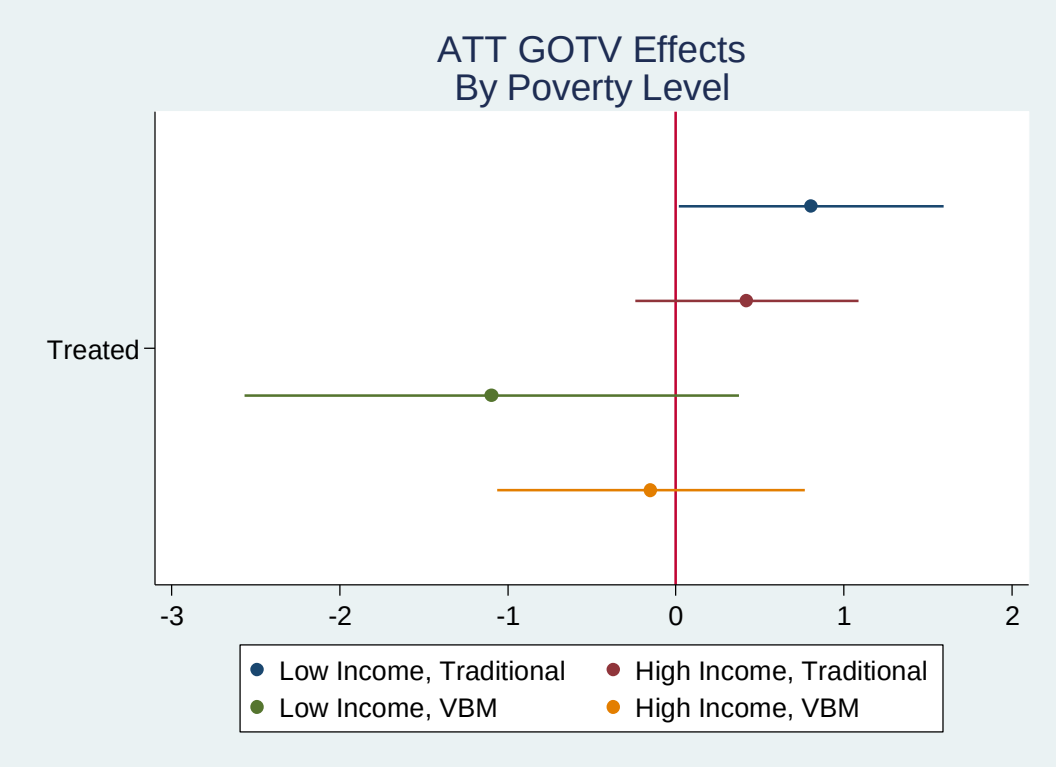

Figure 2.2: ATT GOTV Effects by Poverty Level

Taken in its totality, Table 2.2 presents a more complex picture of how voters are mobilized than has traditionally been considered. In traditional precincts, GOTV appears to increase turnout overall and especially among the poor. However, in control precincts where no voter contact was made, VBM was an effective way of boosting turnout in poor areas. In fact, assigning people to vote by mail was 2.5 times more effective in increasing turnout

among the poor compared to the San Diego GOTV campaign. Given the compliance rate of the San Diego study, a GOTV program would need to contact 34.5% of registered voters in a low-income precinct to have the same effect as switching from traditional voting to VBM.

On the other hand, VBM has no significant effect on turnout for high income voters, while GOTV canvassing may still boost turnout among this cohort. These different responses to voting conditions and canvassing efforts suggest that research and public policy should further consider how (and why) income affects the effectiveness of voter turnout efforts.

To what extent would an analysis based on voter propensity, rather than income, yield similar results? Even though voter propensity and income are only correlated at 0.14, the former is much easier to calculate, and propensity has until now been widely used by political scientists as a proxy for variables like income that are not captured in the voter registration file.

Regressing poverty measures on propensity finds significant correlations between propensity and each of the three poverty measures (effective household income, local poverty rate, and rent stress). Of the three, local poverty rate has the most predictive power (Table 2.3). When local poverty is ten percentage points higher, a person is 2.4 points less likely to vote. For every $14,300 more in household income, a person is predicted to be one percentage point more likely to vote. The fact that poverty and turnout are linked is not surprising – it is consistent with decades of data showing that poor people turn out to vote less. Yet, because of the low correlation between the two, the inverse may not be true: mechanisms that affect turnout among the poor may not be discernable if one only studies voting propensity more broadly.

GOTV studies that assess propensity often analyze results in three bins: high, medium, and low propensity (with a third of the distribution in each category). GOTV efforts

are expected to mobilize lower propensity voters in general elections and high propensity voters in low turnout elections (Arceneaux and Nickerson 2009). For ease of comparison with Table 2.2, I have divided the sample into high and low propensity here; results by three propensity categories (high, medium, and low) are presented in the Appendix.

Table 2.3 presents ITT and ATT effects by propensity, and compared to Table 2.2's analysis by income, we see that the coefficients here for GOTV canvassing in traditional districts are approximately the same, but less significant. However, results for VBM precincts (treated and control) have markedly different coefficients. In Figure 2.3 we see that the ATT effect for canvassing in traditional precincts is similar for high and low propensity voters (though less significant) as compared to high and low income registered voters shown in Figure 2.2. ATT effects for high and low propensity voters appear to be different in VBM precincts though, as compared to analysis by income. GOTV effects in VBM precincts are null for low propensity voters and appear to be marginally demobilizing for high propensity voters (significant at 90%). This paper does not speculate about why the effects by propensity are different. Rather, it highlights this difference to emphasize how other factors often unobserved and unmeasured in GOTV analyses –such as income – may show distinct, theoretically-motivated effects orthogonal to one's voting propensity that have significant implications for policymaking.

Table 2.3: ITT and ATT Effects of GOTV, by Propensity

VARIABLES	(1) ITT: Low Pr	(2) ITT: High Pr	(3) ATT: Low Pr	(11) ATT: High Pr
Treated Precinct	0.0722	0.0341	0.698	0.312
	(0.0506)	(0.0542)	(0.481)	(0.463)
Vote by Mail	0.0847	0.124	0.0841	0.123
	(0.0659)	(0.0816)	(0.0649)	(0.0796)
VBM X Treated	-0.0880	-0.189*	-0.824	-1.500
	(0.0896)	(0.110)	(0.769)	(0.935)
Strata	-0.124	-0.113	-0.126	-0.124
	(0.0755)	(0.104)	(0.0794)	(0.102)
Constant	0.784***	2.163***	0.783***	2.155***
	(0.0929)	(0.116)	(0.0993)	(0.116)
Observations	18,722	18,724	18,722	18,724

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

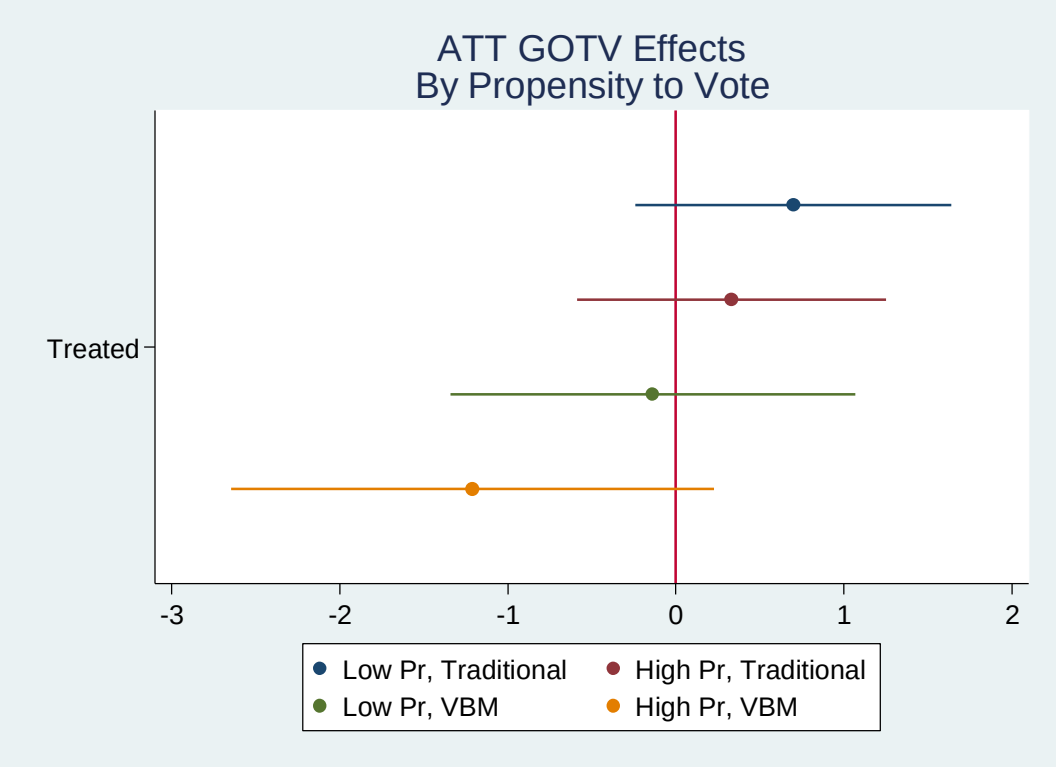

Figure 2.3: ATT GOTV Effects by Propensity to Vote

2.7 Conclusion

Poor people's propensity to vote varies based on a range of individual-level factors; yet, on average, low income citizens are on average less likely to vote compared to wealthier cohorts. Short-term effects of financial stress may affect whether a person votes, regardless of other correlates of voting such as habit, interest, or sense of civic duty. When the stress of poverty becomes acute, people are more likely to forget to vote and to postpone voting if they can in favor of what they perceive as more pressing concerns. As a result of this taxed mental bandwidth, the Good Intention Gap – or the disconnect between intention to vote and follow-through – is wider for people who are poor.

A reanalysis of Kousser et al. (2011)'s San Diego GOTV study sheds light on how different interventions can help address income-related disparities in voting. Assigning people to vote by mail increases turnout by 2-4 percentage points for people in the lower half of the income distribution. When it comes to canvassing, effects depend on the type and timeline of voting. Reminding people to vote in person on a specific day increases turnout more significantly among the poor. Political psychology studies suggest that this reminder helps overcome stress-induced forgetfulness. However, canvassing reminders are not found to be effective for poor people – and may actually be demobilizing. Again, this is consistent with expectations derived for cognitive science and psychology: if people experiencing financial stress are reminded that they have a wide timeframe in which to take action, this may exacerbate stress-driven tendencies to overweight immediate concerns and postpone voting until the time for action runs out.

A limitation of this study is that it is unable to conclusively distinguish between the effects of providing a reminder and providing a specific time for action. It is possible that each factor is necessary but not sufficient to boost turnout among the poor – because both

forgetfulness and postponing are downstream consequences of the cognitive load imposed by financial stress. This study offers one of the first insights into how GOTV efforts may interact with voting method in ways that differentially change turnout at different income levels. Studies that isolate the mechanism(s) driving these observed changes will further inform our knowledge of what kinds of interventions can best close the participation gap between rich and poor voters in the U.S.

2.8 Chapter 2 Appendix

Table 2.4: ITT Effects of GOTV, by Propensity

VARIABLES	(1) Low Pr	(2) Medium Pr	(3) High Pr
Treated Precinct	0.0913	0.0907*	-0.0365
	(0.0557)	(0.0511)	(0.0611)
Vote by Mail	0.141*	-0.0449	0.0622
	(0.0748)	(0.0686)	(0.106)
VBM X Treated	-0.115	-0.0962	-0.109
	(0.101)	(0.101)	(0.134)
Strata	-0.104	0.0277	-0.161
	(0.0732)	(0.0825)	(0.102)
Constant	0.474***	1.671***	2.323***
	(0.0955)	(0.0968)	(0.117)
Observations	12,482	12,482	12,482

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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Chapter 3: When Losing Language Wins — Partisan Responses to Loss Frames

> "I say this every night, every day, every afternoon and it's so true –
> we don't win anymore." (Donald Trump, February 13, 2016)

3.1 Abstract

From the brain's response to threat, to redistributive preferences, to preferences for familiar versus new experiences, broad evidence exists that on a neurological level, conservatives and liberals perceive the world differently. This paper focuses on the political consequences of conservatives' heightened responsiveness to threat stimuli. I show that partisan differences in threat sensitivity translate into differential sensitivity to messages about economic losses – and that loss aversion affects one's likelihood of taking political action. The paper demonstrates that while liberals are more sensitive to appeals to "do good", conservatives are more sensitive to loss frames. For conservatives, loss-framed policies increase one's perception of vulnerability to losses, which in turn increases the likelihood they will take a range of political actions. The paper concludes by discussing how conservatives' higher sensitivity to loss frames made the rhetoric used by Donald Trump particularly effective in capturing attention and mobilizing support among conservatives already worrying about economic loss.

3.2 Introduction

Conservatives and liberals differ in measurable ways, from their tastes in art to the kinds of items they keep on their shelves at home (Neiman 2012). On average, people at opposite ends of the ideological spectrum employ different values when making decisions,

with the former preferring security and conformity and the latter preferring self-expression and stimulation (Graham, Haidt, and Nosek 2009; Schwartz, Caprara, and Vecchione 2010). These differences in how liberals and conservatives engage with the world are observed on a neurological level as well. Conservatives and liberals respond differently to negative stimuli. Whether measured through experimental studies or fMRI scans, conservatives focus on threat more and for longer, while liberals engage in heightened information processing and exploration.

At the same time, behavioral economics has demonstrated that people in general respond differently to the prospect of losses compared to the prospect of gains. Until now, these two strains of research have remained fairly isolated from one another. In this paper, I combine insights from prospect theory and political behavior: I argue that the specter of financial loss acts as a form of threat and frames political issues accordingly. If this is the case, conservatives should respond more strongly to situations (real or experimental) that evoke the threat of financial loss.

This paper shows that policies framed in terms of financial losses mobilize conservatives significantly more than gain-framed policies; the financial threat frame shows little or no effect on liberals. This effect holds for both anticipated and actual political action, and the effect persists under a range of mobilizing conditions and environments.

I also identify mediating cognitive factors: for conservatives, the specter of financial loss magnifies one's perception of threat. For liberals, financial loss is no more mobilizing than financial gain; however, losses do result in increased information processing. Additionally, different types of situations cause liberals and conservatives to show inconsistent preferences. A desire for fairness and minimizing harm appears to increase preference-inconsistent behavior for liberals, while the fear of loss increases preference-

inconsistent behavior for conservatives. These findings lend support to recent suggestions that liberals and conservatives engage in different cognitive processes when they think about risk (Schreiber et al. 2013).

These results have direct implications for the current political environment in the United States. Using the 2016 U.S. election as a case study, I explore how language that raises the fear of future financial loss may have contributed to higher turnout (and affected candidate support) specifically among conservatives.

3.3 Theory

Studies across a variety of disciplines have found that liberals and conservatives perceive the world differently. For example, ideology is predictive of different value sets, and conservatives and liberals turn to different values in order to make moral decisions (Gerber et al. 2010; Mondak and Halperin 2008). Liberals are more likely to privilege the values of fairness and care for others (or, avoiding harm); conservatives weigh considerations across a broader spectrum of morals, including loyalty, respect for authority, and purity (Haidt and Graham 2007; Haidt, Graham, and Joseph 2009; Graham, Haidt, and Nosek 2009).

Additionally, and particularly important for the research presented here, conservatives and liberals differ in how they perceive and respond to threat. Negative images and messages capture the attention of conservatives more effectively than liberals (Hibbing, Smith, and Alford 2014). For example, conservatives find and look longer at angry and scary images, as compared to liberals (Dodd et al. 2012). When faced with risk, Republicans show greater activity in the amygdala – a key area in the brain linked to threat detection – as compared to Democrats (Schreiber et al. 2013; Kanai et al. 2011). Conservatives also have greater amygdala volume and activity compared to liberals. Conversely, liberals have greater volume

and activity of the anterior cingulate cortex (ACC), a region of the brain associated with conflict processing (Amodio et al. 2007; Kanai and Rees 2011). While these differences have primarily been explored in a U.S. context, other societies also show similar linkages between ideological differences (Kossowska and Van Hiel 1999; Petersen et al. 2011; Petersen 2012; Schwartz, Caprara, and Vecchione 2010).[1]

It is possible that heightened threat sensitivity was once evolutionarily advantageous; however, as threat sensitivity becomes less critical to survival in modern times, we see greater variation in this trait. The result, therefore, is greater variation in the population between those who prioritize safety and predictability versus new experiences and diversity. Indeed, there is evidence from genetic studies to suggest that ideology to some extent is influenced by one's genes (Alford, Funk, and Hibbing 2005; McDermott, Fowler, and Smirnov 2008; Hatemi et al. 2013; Oxley et al. 2008; Benjamin et al. 2012). Also, while threat response has become less crucial for survival, no alternative cognitive response has emerged as a clearly preferable survival trait. One possible outcome is that we see the population split between those who have strong threat sensitivity and those who do not, rather than those who show threat sensitivity vs. "anti-threat sensitivity".

How does threat sensitivity affect behavior? Threatening stimuli are more distracting for conservatives (Carraro, Castelli, and Macchiella 2011), leading them to spend more time fixated on negative images (McLean et al. 2014). As a result of threat sensitivity, conservatives are perhaps more liable to be persuaded by arguments that communicate threat or danger (Haidt 2012). They are also less likely to seek out countervailing information, while liberals show greater interest in exploration, potentially resulting in distinct information sets that differentially shape how partisans see the world (Shook and Fazio 2009).

[1] Comparative research in this area has focused on European samples, creating an opportunity to continue testing replicability in non-US and non-European contexts.

In terms of politics, differences in fundamental values, information-seeking, and responsiveness to outside stimuli translate into different policy preferences for conservatives and liberals (Jost et al. 2003). Much of the political behavior research to date has assessed how the intersection of ideology and threat affect public opinion (Huddy et al. 2005; Brader 2005), one's ability to be persuaded (Lakoff 2002), and the pursuit of new political information (Marcus et al. 2005; Huddy, Feldman, and Weber 2007). Less is known about how this interaction between ideology and threat affects one's propensity to take political action.

My research builds on existing scholarship to identify how threat perception can lead to differential *political action*, and through what mechanisms. Furthermore, negativity bias appears to be domain specific, and thus scholars have suggested that new research should seek to understand what domains elicit a stronger response for conservatives – or liberals. I use insights from prospect theory to test how the threat of financial loss is differentially mobilizing for conservatives, mediated by a set of cognitive responses consistent with the existing research described above.

Studies in cognitive science, psychology, and behavioral economics show that people dislike losses more than they like gains (Tversky and Kahneman 1981; Kahneman 2013). Consequently, people are more willing to take risks to avoid losses, while people prefer certainty to risk when faced with the possibility of gains (Quattrone and Tversky 1988). This widely-demonstrated preference for avoiding loss (Camerer 2003) results in people showing inconsistent preferences and behavior that avoids losses even at the expense of a more optimal choice (Shafir and LeBoeuf 2002).

Politically, individuals may be more susceptible to messages that emphasize losses over gains (Kuklinski, Quirk, et al. 2000; Jerit 2009). Negative affect resulting from threat

also shapes public opinion (Lerner et al. 2003), and loss-framed arguments are particularly persuasive when people are experiencing heightened anxiety (Arceneaux 2012).

I argue that for threat-sensitive conservatives, the prospect of loss (in this case, financial loss) elevates their anxiety and causes political issues to be perceived in terms of future threat. I expect that this threat response increases both conservatives' desire to take political action and their actual level of political action. Firstly, this is because heightened threat perception should lead to a greater likelihood of acting to avoid threat. Secondly, threat and anxiety both increase frame persuasiveness, leading to greater perceived issue salience. Finally, the cognitive bias generated by loss aversion should interact with perceived threat to increase action, even when political action is not expected to be the optimal, rational response.

For liberals, I expect that loss-framed messages will not be mobilizing, because they will not elicit the same level of threat response. This does not mean that liberals are not affected by loss-framed messages. Rather, I argue that loss aversion will manifest in different cognitive and behavioral responses for liberals. Consistent with past research, I expect to find evidence of increased conflict processing in response to loss-framed policies (greater cognitive processing) and an inclination toward fairness and reducing harm, even when this leads to inconsistent (irrational) preferences.

I test the mobilizing effects of loss language by ideology through two randomized experiments. The experiments also test cognitive mechanisms mediating the mobilizing effect of loss threat. Next, I show that these findings are consistent with response patterns in nationally representative survey data. Finally, I conclude by considering policy implications of these findings – I discuss how the 2016 U.S. presidential campaign demonstrates that candidates can use loss language to differentially mobilize a conservative audience. I also

show experimentally that beyond simple citizen mobilization, politicians' use of loss language can frame the election in ways that also influence vote choice.

3.4 Study 1

3.4.1 Procedure

In April 2015, I conducted an online study with 994 participants via Amazon Mechanical Turk. Treatment conditions were randomized across study participants, and the sub-sample in each treatment condition appears balanced (see Appendix). The sample skews poorer, younger, and more Caucasian than the general U.S. population. While the study is not population-representative, it does offer extra clarity on how this specific demographic – poorer, white Americans – responds to the threat of financial losses. Respondents reported their ideology on a 10-point scale (from left to right); for the purposes of the analysis that follows, the sample was divided into left and right subgroups, with 59% of respondents identifying generally with the left side of the political spectrum and 41% of respondents identifying with the right.

Half of the sample received vignettes comprising a "loss" treatment, while the other half of the samples received vignettes comprising a "gain" treatment. These scenarios discussed a proposed federal policy (increasing the federal gas tax) and then framed the policy in terms of either gains or costs.[2] Respondents were asked to complete a series of open-ended responses and reflection tasks to strengthen the framing effect.

[2] "Gas prices were recently lower than they have been in 4 years, so the US government is considering whether it's time to increase the federal gas tax. One proposal is to increase the federal gas tax by $0.35 per gallon." [**Loss frame:** "More gas tax revenue would raise federal funds for transportation infrastructure, which has experienced a significant decline. Funds will enable the country to repair roads and highways, fix bridges that are structurally unsound, and improve public transit. The benefits of this tax increase will affect millions of Americans. " / **Gain frame:** Raising the federal gas tax by $0.35 per gallon would mean paying an extra $3.50-5.00 every time a person fills the tank. It would also increase the cost of food and other goods by raising transport costs. Over time, a gas tax will most

Instead of simply measuring respondents' self-reported intent to take action on this political issue, participants were then given the opportunity to immediately support or oppose the policy change by signing an online petition on the advocacy website Change.org. The decision to sign an online petition during the course of the study is the experiment's key outcome variable, operationalizing political mobilization at the individual level. I track click rates to access the petition website, and this serves as my measure of actual political mobilization.[3] The dependent variable is political action, rather than issue support/opposition; respondents received simultaneous opportunities to support or oppose the issue, and rates of action are presented here in the aggregate. Consequently, while issue opinion, strength of sentiment, and personal relevance of issue are all measured in the study, the analysis presented here focuses specifically on the effect of loss/gain framing on political action.

The study measured political action in tandem with a set of behavioral and cognitive metrics. After being presented with the treatment conditions, respondents completed a 20-question Stroop test designed to test mental focus and executive control. In this test, participants were shown words like BLUE and YELLOW in different colors; sometimes the words were in colors that matched the word, but other times the words were written in non-corresponding colors. Participants' goal in the Stroop test was to accurately enter the color of the word (not the color spelled by the word). The brain finds it confusing when word and color do not match and requires extra focus to provide the correct answer.

After receiving the treatment frames, the respondents also provided information on their preference for risk versus certainty, time preferences, and perceived income variability over the last year. Income variability was measured on a 9-point scale (from "very constant

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affect people on low or variable incomes. The costs of this tax increase will impact millions of Americans."

[3] To protect respondent anonymity, I am unable to link specific survey responses with personal data provided to Change.org, the website where I made these petitions available.

over time" to "highly variable over time") and is used as a proxy for perceived financial vulnerability (financial threat). As described below, the results show that issue framing alters responses in all three of these areas (risk preferences, time preferences, and perceived financial vulnerability), but only focus and perceived threat appear to mediate political action. Moreover, different cognitive responses mediate action for conservatives and liberals, consistent with theoretical expectations.

3.4.2 Analysis

Table 3.1 shows which types of respondents were more likely to take political action by signing the online petition embedded in the survey. Column 1 shows that when the policy was framed in terms of losses, respondents were more likely to take action. Column 2 demonstrates that these effects are not homogeneous by political ideology though. Under the gain frame, liberals were significantly more likely to sign the online petition compared to conservatives. The loss frame is only mobilizing for conservatives (and may actually be demobilizing for liberals), leading to a mobilization rate that is as high or higher for than for liberals under the gain frame. Column 3 shows that under gain framing, more conservative respondents are increasingly unlikely to take online action, and that this trend reverses under the loss frame (see Figure 3.1).

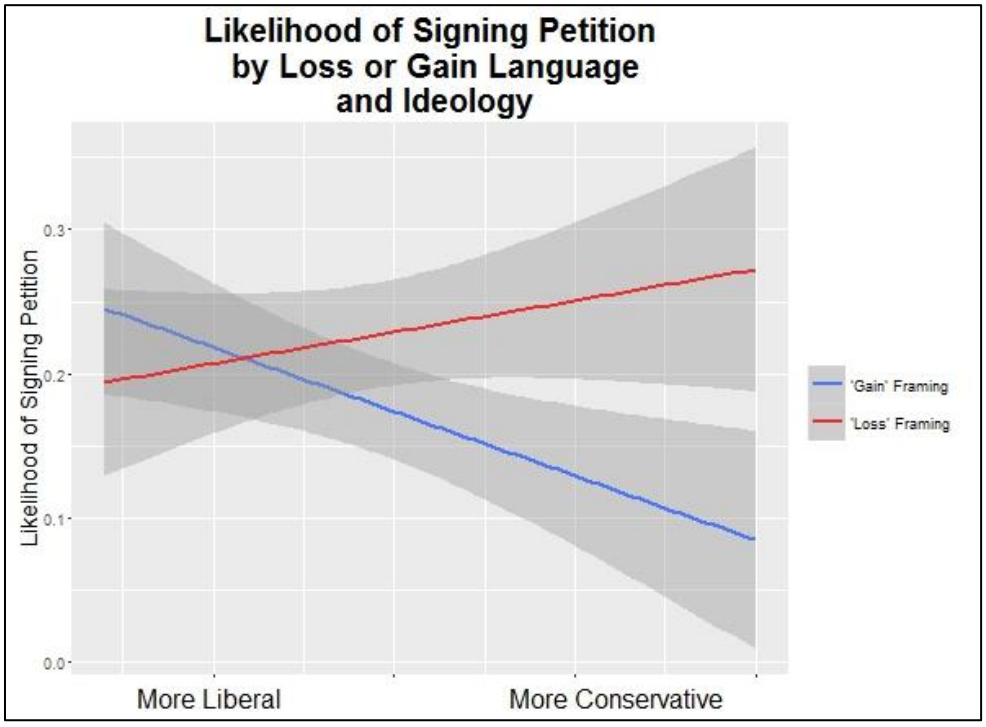

Figure 3.1: Likelihood of Signing Petition by Loss or Gain Language and Ideology

The study also identifies two other important characteristics correlated with higher action rates. As shown in Table 3.1 (Columns 4-6), people demonstrating higher levels of focus – measured in their better performance on the Stroop test – are less likely to sign the online petition. This may be because increased executive control enables respondents to think more rationally about the costs and benefits of signing an online petition, and they are more likely to decide that doing so is not worthwhile (low likelihood of one signature making a difference, especially when signing comes at the expense of time that could be spent on other income-generating survey tasks).

Table 3.1: Correlates of Taking Online Action

	Loss Treatment Effects			Effects of Potential Mediators		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Loss Treatment	0.319**	0.885***	-0.435			
	(0.161)	(0.272)	(0.331)			
Left	0.188	0.696***			0.242	0.235
	(0.167)	(0.261)			(0.168)	(0.168)
Treat X Left		-0.901***				
		(0.340)				
Ideology			-0.125***			
			(0.0484)			
Treat X Ideology			0.166***			
			(0.0639)			
Focus				-0.758***	-0.709**	-0.705**
				(0.289)	(0.311)	(0.311)
Variable Income				0.0708**	0.0611*	0.0506
				(0.0321)	(0.0325)	(0.0337)
Female	0.373**	0.380**	0.374**		0.365**	0.350**
	(0.165)	(0.165)	(0.165)		(0.164)	(0.165)
Age	0.00979	0.00922	0.00943		0.00427	0.00454
	(0.00709)	(0.00713)	(0.00714)		(0.00747)	(0.00749)
Income	-6.87e-06*	-6.48e-06	-6.59e-06			-5.27e-06
	(4.17e-06)	(4.18e-06)	(4.18e-06)			(4.35e-06)
College	-0.311*	-0.317*	-0.310*		-0.369**	-0.311*
	(0.171)	(0.172)	(0.172)		(0.165)	(0.172)
White	-0.00571	0.0161	-0.0104		0.0393	0.0483
	(0.201)	(0.202)	(0.201)		(0.202)	(0.203)
Constant	-1.815***	-2.156***	-1.131***	-1.246***	-1.575***	-1.390***
	(0.339)	(0.373)	(0.379)	(0.218)	(0.411)	(0.438)
Observations	992	992	992	993	991	991

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Additionally, people who report more variable income are more likely to sign the online petition (this effect disappears when income is added to the regression due to the collinearity of income level and variability). This may be due to higher issue salience for vulnerable groups; alternatively, as the data below suggest, income variability proxies for financial threat, and we see that the threat of losses is particularly mobilizing for conservatives (an effect that remains significant here in the aggregate).

How does the treatment itself affect these potentially mediating variables such as cognitive focus and perceived threat? Table 3.2 shows that framing the policy issue in terms of losses results in higher performance on the Stroop test measuring executive control. Consistent with past studies, these results show that loss frames increase cognitive focus for everyone, regardless of ideology (Columns 1-3).

At the same time, respondents who are shown the loss-framed policy are also more likely to report afterwards that their income had higher variability over the last year. This suggests that loss frames increase the perception of vulnerability, and that one faces the threat of financial insecurity.

While on average loss framing increases both executive control and perceived financial insecurity – and both factors correlate with higher probability of political action – these variables' mediating effects differ by political ideology. Mediation analysis[4] shows that for liberals, increased focus mediates *lower* probability of taking online action, significant at 95%, and the effect of loss framing on political action explains 40% of the total effect. For conservatives, increased focus has no significant mediating effect of the loss treatment on action (see Figures 3.2-3.3).

Conversely, mediation analysis shows that it is the perception of financial insecurity that mediates *higher* political action for conservatives. The total mediated effect is smaller (3% of total effect), statistically significant at 95%. For liberals, perception of financial insecurity does not significantly mediate the effect of loss framing on political action.

[4] The binary mediation package in Stata

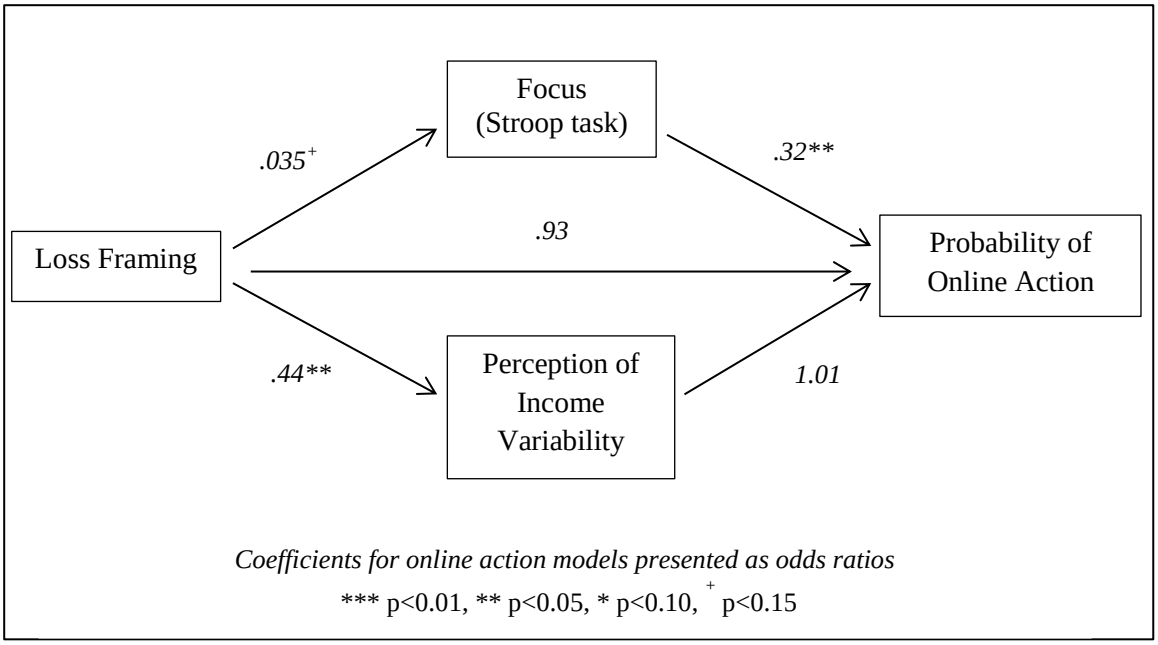

Figure 3.2: Focus Mediates Demobilizing Effect of Loss Frame on Online Action (for Left)

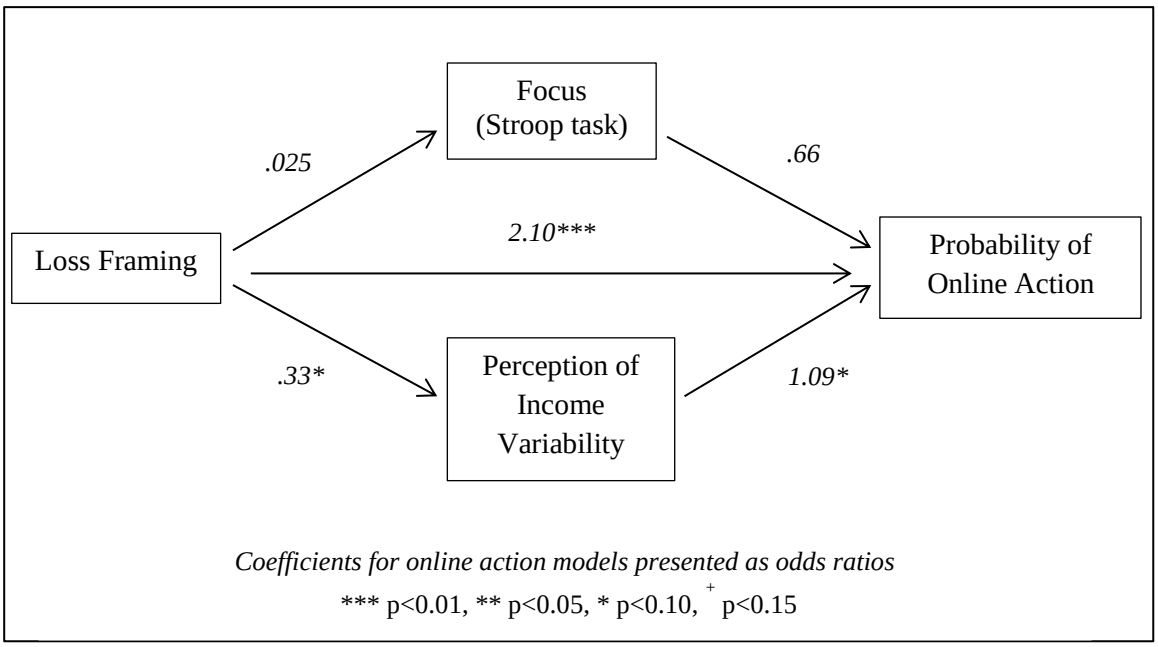

Figure 3.3: Higher Perception of Income Insecurity Mediates Mobilizing Effect of Loss Frame on Online Action (for Right)

Table 3.2: Treatment Effect on Attention and Threat Perception

	Focus (Stroop Performance)			Threat (Perceived Income Variability)		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	0.0365**	0.0291*	0.0319	0.394**	0.378**	0.244
	(0.0172)	(0.0163)	(0.0255)	(0.154)	(0.148)	(0.232)
Left	0.0522***	0.0529***	0.0553**	0.116	0.0728	-0.0402
	(0.0175)	(0.0167)	(0.0235)	(0.157)	(0.152)	(0.214)
Treat X Left			-0.00480			0.226
			(0.0332)			(0.302)
Female		-0.00767	-0.00764		0.168	0.166
		(0.0167)	(0.0167)		(0.152)	(0.152)
Age		-0.00795***	-0.00796***		-0.0130*	-0.0129*
		(0.000748)	(0.000749)		(0.00681)	(0.00682)
College		0.00723	0.00720		-0.117	-0.116
		(0.0173)	(0.0173)		(0.157)	(0.157)
White		0.0526***	0.0527***		0.0536	0.0478
		(0.0202)	(0.0202)		(0.183)	(0.184)
Income		2.76e-07	2.78e-07		-3.00e-05***	-3.01e-05***
		(4.06e-07)	(4.06e-07)		(3.70e-06)	(3.70e-06)
Constant	0.519***	0.742***	0.740***	3.570***	5.020***	5.089***
	(0.0158)	(0.0343)	(0.0357)	(0.142)	(0.312)	(0.325)
Observations	993	992	992	992	991	991
R-squared	0.014	0.122	0.122	0.007	0.088	0.088

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.5 Study 2

3.5.1 Procedure

In a second online study, conducted in May 2016, I designed gain and loss treatment frames that translated behavioral economic concepts into a realistic policy space. This study recruited 1010 participants via Amazon Mechanical Turk, again with treatment conditions randomized across study participants. The sub-sample in each treatment condition appears balanced (see Table 3.5, Appendix). As in the first study, respondents were divided afterwards by ideology into right and left subgroups to analyze behavior differences between liberals and conservatives.

While many core behavioral experiments in Prospect Theory have been replicated thousands of times, it is not always clear how these experiments (and the numbers they use) translate into a political decision space. Therefore, to explore how prospect theory applies to political issues, I designed parallel treatment conditions that met the following criteria: 1) Quantifiable gains/losses in measurable units that were equivalent in both the gain and loss domains, 2) An equivalent quantity of gains/losses in the two treatment conditions for which 3) Evidence exists suggesting that both the gain/loss frames are realistic, and 4) Gain/loss policy frames did not closely align with partisan ideology.

Ultimately, I created a treatment frame that satisfied these conditions by focusing on international trade. Free trade is an issue that does not cleanly follow party lines, and it allows both gains and losses to be quantified in terms of jobs and cost of goods. The treatment language is identical except for the gain/loss terminology, and because of expected short- and long-term market changes predicted by free trade, both the gain and loss language are arguably accurate:

> *The Trans-Pacific Partnership (TPP) is a new trade agreement between the US and 11 other countries. After years of negotiation, the TPP was recently finalized. Now, it's up to the U.S. Congress to ratify the trade deal. Soon, Congress will decide whether to ratify this free trade agreement.*
>
> *If the TPP is ratified, the U.S. stands to **[gain/lose]** a large number of jobs, and we will **[gain/lose]** many U.S. businesses. The TPP also will cause wage [gains/losses] for certain job sectors, and consumers will spend **[less/more]** money on certain products. The **[gains/losses]** from this trade agreement will affect millions of Americans.*

Respondents were asked to report their likelihood of taking various types of political action on a scale of 0-100 (signing an online petition, contacting one's Representative, telling others about the issue, attending a rally, voting). Furthermore, I tested whether loss framing was more or less effective when respondents had different information about others' likelihood of action – whether the social dimension of political participation attenuated the effect of loss frames on mobilization.[5] Similar to the first study, respondents again had the opportunity to sign an online petition during the study either to support or oppose the TPP.[6]

Different policy issues may result in either net gains or net losses for individuals, and different political environments present different levels of risk and magnitude of expected payoffs for potential participants. Therefore, I use the "Fourfold Pattern" to test whether loss framing affects risk preferences differently depending on the magnitude of gains or losses faced by the decision-maker. Kahneman and Tversky developed the "Fourfold Pattern" to assess people's preferences in four different domains: high / low probability outcomes

[5] Political action can take various forms (signing petitions, contacting your representative, sharing your opinions, attending a rally, etc.). Would or wouldn't you want to advocate for your position on the TPP trade agreement if you learned: 1) A majority of U.S. citizens hold your view. 2) A minority of U.S. citizens hold your view.

[6] Currently, there are both online petitions that support and oppose ratifying the Trans-Pacific Partnership trade agreement. You can take action on this issue by signing the online petition. Participation takes 30 seconds and is optional (will not affect your pay). To sign, select the "support" or "oppose" option, and you will get a petition link on the next page.

interacted with the prospect of gains / losses.[7] They test people's preference for risk or certainty in each of these four domains by presenting two monetary options that are equivalent in expectation (one option involving risk, the other involving certainty). For example, in the high probability x loss domain, respondents are asked to choose between a 95% chance of losing $10,000 or a 100% of losing $9500. Previous work has found that in the gain domain, people generally become more risk averse (preference for the certain outcome, even if it is smaller) as the probability of winning increases; conversely, in the loss domain people become more risk seeking (preference for taking a chance, even if the loss is larger) as the probability of losing increases.

How does priming people to think about losses affect interest in taking action across these four domains? Recent research on bias-congruent frames suggests that loss primes and frames will be more mobilizing when people are presented with issues in the loss domain (Arceneaux 2012). To test this expectation – as well as the theory that conservatives are more responsive to loss frames – I adapt Kahneman and Tversky's Fourfold Pattern to link payoffs to policy alternatives.

For each of the following domains (Figure 3.4), respondents in this study were told "Imagine the government is choosing between two policies that would have the following effects on your household finances. Which policy do you support more?" Then, for each domain they were asked to report how likely they would be to take political action, advocating that the government adopt their preferred policy over the alternative.[8]

[7] See Kahneman (2013)

[8] Political advocacy can take various forms (signing petitions, contacting your representative, sharing your opinions, attending a rally, etc.). Would or wouldn't you want to advocate for the government to adopt your preferred policy (over the alternative choice)?

High Probability GAIN: 95% chance to gain $10,000 (and 5% chance to gain nothing) *versus* Gain $9500 for sure	**High Probability LOSS:** 95% chance to lose $10,000 (and 5% chance to lose nothing) *versus* Lose $9500 for sure
Low Probability GAIN: 5% chance to gain $10,000 (and 95% chance to gain nothing) *versus* Gain $500 for sure	**Low Probability LOSS:** 5% chance to lose $10,000 (and 95% chance to lose nothing) *versus* Lose $500 for sure

Figure 3.4: Domains by High/Low Certainty ant Expected Personal Gain/Loss

Finally, in this study I also adapt another seminal Prospect Theory study to test how loss/gain frames may drive inconsistent preferences when tradeoffs are presented as losses or gains. The "Asian Disease" experiment (Tversky and Kahneman 1981) has shown that on average people prefer certainty when options are framed in terms of potential lives saved, but that people prefer risk when options are framed in terms of potential lives lost – even when the possible outcomes are numerically the same (just framed differently) in both scenarios.

In the study presented here, I first ask respondents to engage with the questions related to the loss- or gain-framed description of the TPP. Then, I altered language from the Asian Disease experiment so that the choices presented to respondents referred to government policies that may save or lose jobs. In the "save" condition, all respondents were told:

> *1: Imagine that the government is preparing for a situation that is expected to lose 600 jobs. Two alternative policies to combat job loss have been*

> *proposed. Assume that the exact economic estimates of the consequences of the two policies are as follows: If Policy A is adopted, 200 jobs will be saved. If Policy B is adopted, there is a one-third probability that 600 jobs will be saved and a two-thirds probability that no jobs will be saved. Which policy do you prefer, and by how much?*

Respondents rated their support on a 0-100 scale, where 0 equaled support for A (saving with certainty) and 100 equaled support for B (saving with risk). Note that these two policy options are equivalent in expectation.

Then, respondents are presented with two additional policy choices. These options are numerically identical to the first two choices, except that they are presented in terms of the number of total jobs lost (rather than saved):

> *2. Again imagine the government is preparing for a situation that is expected to lose 600 jobs. Two more policies to combat job loss have been proposed. Assume that the exact economic estimates of the consequences of the two policies are as follows: If Policy C is adopted, 400 jobs will be lost. If Policy D is adopted, there is a one-third probability that no jobs will be lost and a two-thirds probability that 600 jobs will be lost. Which policy do you prefer, and by how much?*

Respondents again rated their support on a 0-100 scale, where 0 equaled support for C (saving with certainty) and 100 equaled support for D (saving with risk). If respondent preferences are consistent, one's response to Question 1 and Question 2 should be the same. To test this, I subtract the response to Question 2 from the response to Question 1 to generate a measure of inconsistent preferences under "save" and "loss" scenarios.

3.5.2 Analysis

Consistent with the results from Study 1, I find that loss-framed policies are more strongly mobilizing for conservatives than liberals. I also find that this trend holds under a series of mobilization conditions.

Similar to Study 1, respondents were asked how likely they were to sign a petition promoting their preferred TPP position. For conservatives, loss framing had a significant mobilizing effect (compared to liberals) and gain framing had a demobilizing effect. Overall, conservatives who saw the loss-framed policy issue said they were 10 points more likely to sign an online petition than conservatives who saw the gain-framed issue (Figure 3.5). On the other hand, loss versus gain framing had no effect on liberals' reported likelihood of signing a petition promoting their preferred position on the TPP.[9] This trend holds for other types of political action as well – while for some types of political action loss framing is more mobilizing for both conservatives and liberals, in general there was a larger gap in intention to act for conservatives presented with loss and gain policy frames (see Appendix).

Figure 3.5: Likelihood of Signing Petition

[9] Actual effect on signing the online petition offered in the study is not statistically significant, although the coefficient signs are consistent with findings in Study 1. See Table 3.7 in the Appendix.

Findings also suggest that loss language is mobilizing for conservatives regardless of whether they think their stance is shared by a majority or a minority of other citizens. Respondents were asked how likely they were to take political action of any form (signing petitions, contacting your representative, sharing your opinions, attending a rally, etc.) to advocate for their position on the TPP trade agreement under two conditions: 1) the majority of other citizens shared this view; 2) a minority of others shared this view. For liberals, neither the majority or minority condition nor the loss or gain framing significantly shifted likelihood of taking action.

For conservatives, though, loss framing of the TPP issue again was significantly more mobilizing than gain framing (Figures 3.6-3.7). While on average conservatives were more likely to want to take action if they were in the majority, the mobilization effect for conservatives was of similar magnitude in both scenarios. Regardless of whether they were in the majority or minority, loss framing made conservatives report they were 7-8 points more likely to take action (on a 100-point scale).

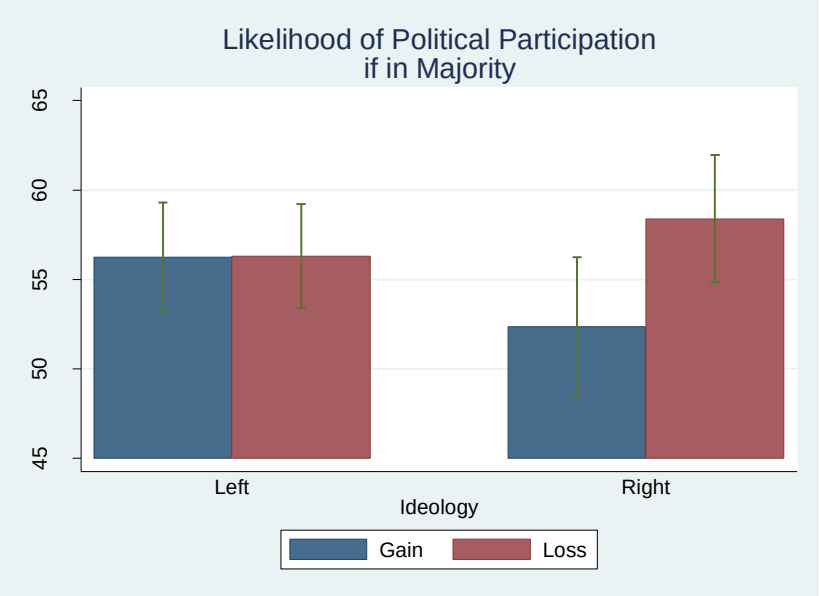

Figure 3.6: Likelihood of Political Participation if in Majority

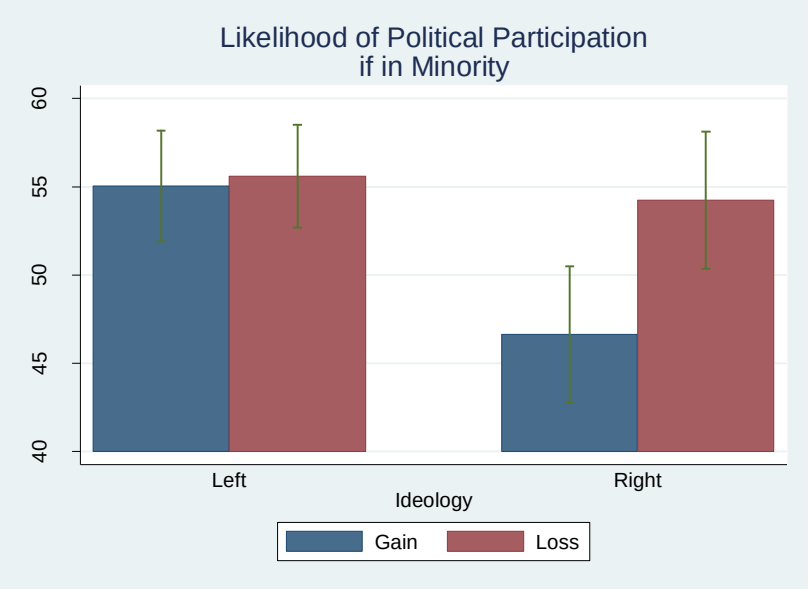

Figure 3.7: Likelihood of Political Participation if in Minority

As described above, citizens contemplating action also can face mobilizing environments that offer different types of payoffs: sometimes they expect to experience net gains if a policy is implemented, and other times they expect to experience net losses if a policy is implemented. At the same time, some policies may vary in magnitude of cost/benefit to the individual and the perceived riskiness of action (likelihood that acting will result in a net gain – or avoidance of loss). These differences make relevant the different decision environments outlined in the four-fold pattern presented above in Figure 3.4. After respondents indicated their preference for risk or certainty, they were asked how likely they were to take action to promote this risky or certain policy over the alternative in each of the four domains. Noteworthy here is that this set of questions made no reference to the TPP, but we still see lingering effects of loss priming from the earlier set of policy questions.

Figure 3.8 presents the results, showing that conservatives say they are more likely to act after they have seen loss-framed policies versus gain-framed policies. In general, conservatives in the gain treatment condition were less likely to want to take action – both compared to conservatives in the loss treatment condition and compared to liberals in both treatment groups. Regardless of the domain, priming conservatives to think about losses boosts intention to a level on par with liberals.

How might the sensitivity to financial threat, explored in Study 1, change cognition in ways that promote action? The Asian Disease experiment, adapted for a policy context, provides insights. Respondents were shown two sets of policies which are equal in expectation (between the two choices) and offer identical outcomes (across the two questions). Both questions offer a choice between certain and probabilistic job loss; the first question emphasizes how many jobs could be saved in each condition, while the second question emphasizes the number of jobs that could be lost in each condition.

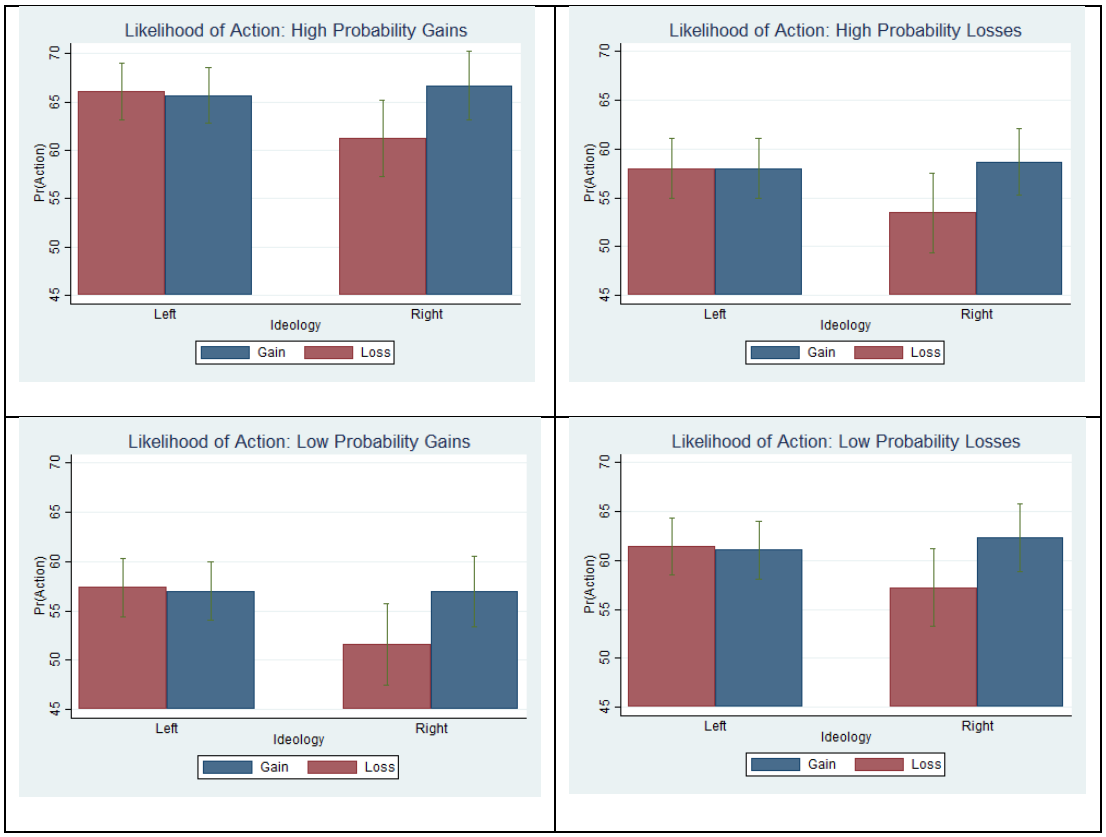

Figure 3.8: Likelihood of Action by Gain/Loss and High/Low Certainty Domains

Respondents were ask to rate their policy preference on a scale from 0-100, where 0 represented full support of the certainty option and 100 represented full support of the risk option. The average preference score under the "save" condition was 35 across all respondents (preference for certainty), while the average preference score under the "loss" condition was 50 (showing higher preference for risk). If people have consistent (frame-invariant) preferences, their score for both questions should be equal. I calculate the degree of preference inconsistency for each respondent by subtracting Response 2 from Response 1. Consistent with other Asian Disease replications, these results show that on average people's

preferences are influenced by framing, leading to an average divergence of 15 points (with certainty preferred in the "save" scenario and risk preferred in the "lose" scenario).

The novel contribution here is that while conservatives and liberals both show inconsistent preferences, these inconsistencies are exacerbated under different conditions for the two ideologies – in ways that are consistent with expectations from existing cognitive science and political psychology. Results indicate liberals are more susceptible to "save" and "lose" framing in the scenarios, while conservatives are more influenced by *ex-ante* primes that invoke the specter of personal loss (Figure 3.9). Specifically, liberals prefer certainty (200 jobs saved) when presented with "save" language, but they have a stronger preference for risk (2/3 chance 600 jobs lost) when presented with "lose" language. *Ex-ante* priming of personal loss has no discernable effect on the magnitude of this difference.

Conversely, conservatives may show a slightly higher preference for risk versus certainty across the "save" and "loss" scenarios (suggestive with significance at 85%), as compared to liberals. More importantly, conservatives' preference for risk is more internally consistent between the two scenarios, as compared to liberals. However, we see that it is the prior priming of personal economic losses (or gains) that changes how consistent conservatives' preferences are, and these results also hold when controlling for other demographic variables. Without a pure control (no gain or loss prime), it is not possible to tell whether gain primes improve internal consistency (as compared to conservatives' baseline), or whether loss primes drive more inconsistent preferences. Regardless, these results suggest that liberals' preferences are shifted more by loss framing in context, while conservatives' preferences are affected more by prior priming to consider losses related to their in-group's economic prospects.

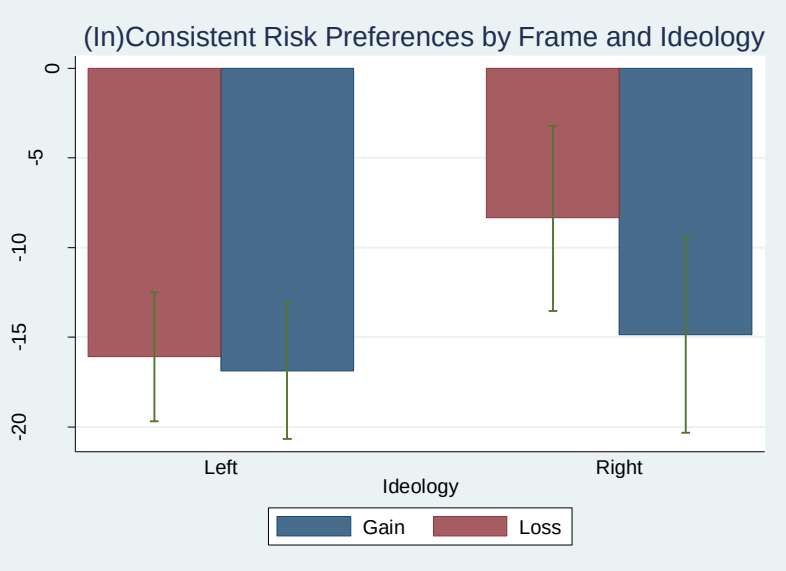

Figure 3.9: Magnitude of Risk Preference Inconsistency by Frame and Ideology

This experiment may also provide evidence that taking political action is to some extent irrational. Regardless of ideology, those who show a larger effect of loss priming (through the trade self-reflective task) on generating inconsistent save/loss preferences also show an increased likelihood of taking action through the online petition. Furthermore, mediation analysis shows that loss prime-induced inconsistencies in preferences mediate 11% of total likelihood of taking action – but for Republicans only.

While we cannot concretely identify why this change in preferences occurs – or why it mediates action – it may be that factors other than a calculated cost-benefit analysis drive behavior. Consistent with literature on partisan differences in values and cognition, my adaptation of the Asian Disease experiment sheds light on how liberals and conservatives may become more irrational (and more easily mobilized) under different conditions. The results also suggest that, as scholars have shown in non-partisan contexts (Arceneaux 2012), the

threat of losses leads to greater congruence with (and mobilizing effect of) loss-framed policies.

3.6 National Implications

If threat of financial loss mobilizes conservatives, we should see evidence of this in national-level data. The American National Election Study (ANES) (2012) provides an opportunity to test whether the perception of financial loss in one's household affects political participation in ways consistent with the experimental results above. The ANES is conducted in a nationally representative survey conducted in two waves. In the first wave, respondents provide details about their political beliefs as well as descriptive statistics. Participants indicate how likely they are to vote in the upcoming 2012 general election. Then, after the election, respondents are recontacted to determine whether they actually voted or not. Ideology is measured on a 7-point scale where 1 equals "extremely liberal" and 7 equals "extremely conservative".

In the first survey round, respondents were asked: "We are interested in how people are getting along financially these days. Would you say that [you/you and your family living here] are BETTER off or WORSE off than you were a year ago?" This question measures perceived financial stability, rather than anchoring the response on quantifiable measures of wellbeing. This is actually desirable, as the measure captures one's *perception* of financial vulnerability. I expect that conservatives who have experienced financial loss – and thus perceive themselves to be in a threatened financial position – will be more likely to mobilize than both liberals with similar levels of vulnerability and conservatives not experiencing financial threat.

The data support these expectations: perceived financial loss at the household level is differentially mobilizing for conservatives (Table 3.3). Among conservatives, perception that one's family finances are worsening both increases intent to vote and actual voter turnout. Conversely, financial loss correlates with liberals reporting lower interest in voting than their liberal counterparts who experienced stable or improved household finances.

Using the coefficients in Column 2 (controlling for income) to estimate self-reported likelihood of voting, we find that financially secure, extremely liberal respondents are 67% likely to vote. Under financial threat, though, this group's average self-reported likelihood of voting drops to 49%. By comparison, financially secure, extremely conservative respondents report being 55% likely to vote, and this number jumps to 67% if respondents have experienced financial loss. These trends hold when controlling for demographic characteristics such as income, education, gender, age, and race. These same trends hold for actual voter turnout as well: financial loss correlates with higher turnout among conservatives and lower turnout among liberals (Columns 3-4). Results are consistent when the ANES verified voter data is used in lieu of self-reported voting behavior.

Citizens' perception of wellbeing over time is malleable, and it can be endogenous to political ideology and the current party in control of the national government. In general, the major political party not holding the Presidency is more likely to perceive that their economic situation is worsening over time. With a Democrat as incumbent in the 2012 election, there is a risk that the external political environment may be affecting perceptions of the economy in ways that differ by party, leading to omitted variable bias in the above results.

Table 3.3: Financial Loss and Voter Mobilization, by Ideology

	Vote Intent (OLS)		Voted (Logit)	
VARIABLES	(1)	(2)	(3)	(4)
Financially Worse Now	-21.54***	-15.43***	-1.730***	-1.539***
	(3.572)	(3.562)	(0.283)	(0.323)
Ideology	-0.698	-0.423	-0.114***	-0.139***
	(0.454)	(0.451)	(0.0424)	(0.0485)
Financially Worse X Ideology	4.127***	2.895***	0.355***	0.316***
	(0.737)	(0.738)	(0.0628)	(0.0718)
Age		0.358***		0.0326***
		(0.0361)		(0.00345)
Female		0.793		0.216*
		(1.166)		(0.112)
College		7.262***		0.768***
		(1.136)		(0.139)
White		-3.927***		-0.220
		(1.489)		(0.142)
Household Income		0.000116***		1.42e-05***
		(1.47e-05)		(2.43e-06)
Constant	89.26***	67.00***	1.916***	-0.0492
	(1.846)	(2.761)	(0.183)	(0.271)
Observations	5,150	4,489	4,899	4,256
R-squared	0.015	0.099		

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Therefore, I turn to aggregate ANES data on all U.S. presidential elections since 1976 that use comparable questions across election survey waves. Results do show that the interaction effect between partisan ideology and perceived financial loss does vary over time (with largest effects for the party out of power when the President faces reelection). Yet, when we look instead at strength of support for the Democrat or Republican candidate, we see a pattern: in the aggregated 1976-2012 data, the interaction effect between support of the Republican candidate and expectation of personal financial loss is significantly mobilizing. Conversely, the interaction between support of the Democratic candidate and personal financial loss is demobilizing (Figure 3.10).

To some extent, strength of candidate preference and perceived personal wellbeing will be endogenous. Yet, if only strength of candidate support mattered as a mobilizing force,

rather than ideological affiliation, we would expect to see a flat or parabolic relationship between candidate support and political action, particularly for those who have concerns about future financial loss.

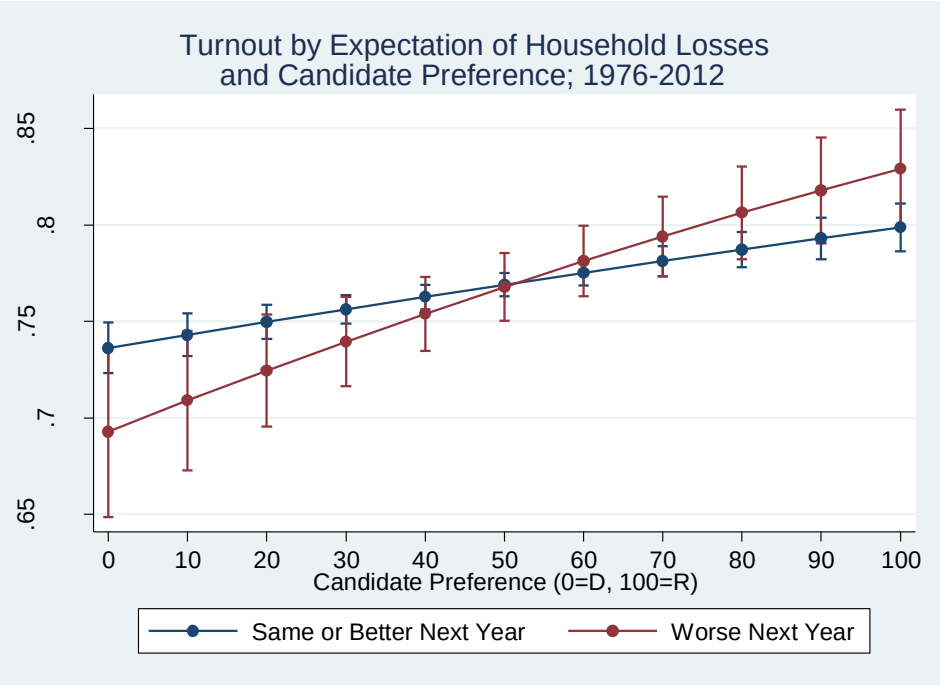

Figure 3.10: Turnout by Expectation of Household Losses and Candidate Preference (1976-2012)

In the ANES, respondents are also asked to report how active they were in campaign activities during the last year (on a 6-point scale). Mobilization in support of a candidate shows a similar pattern as voting: among people doing as well or better this year compared to last year, mobilization rates do not vary significantly with candidate support. However, among those who report being worse off now versus last year, Republican supporters are significantly more likely to be active in a campaign than Democrats (Figure 3.11). These

effects hold when controlling for demographic factors and are robust to both models that use a binary outcome (any involvement) and intensity of involvement in campaign activities (Appendix, Table 3.8).

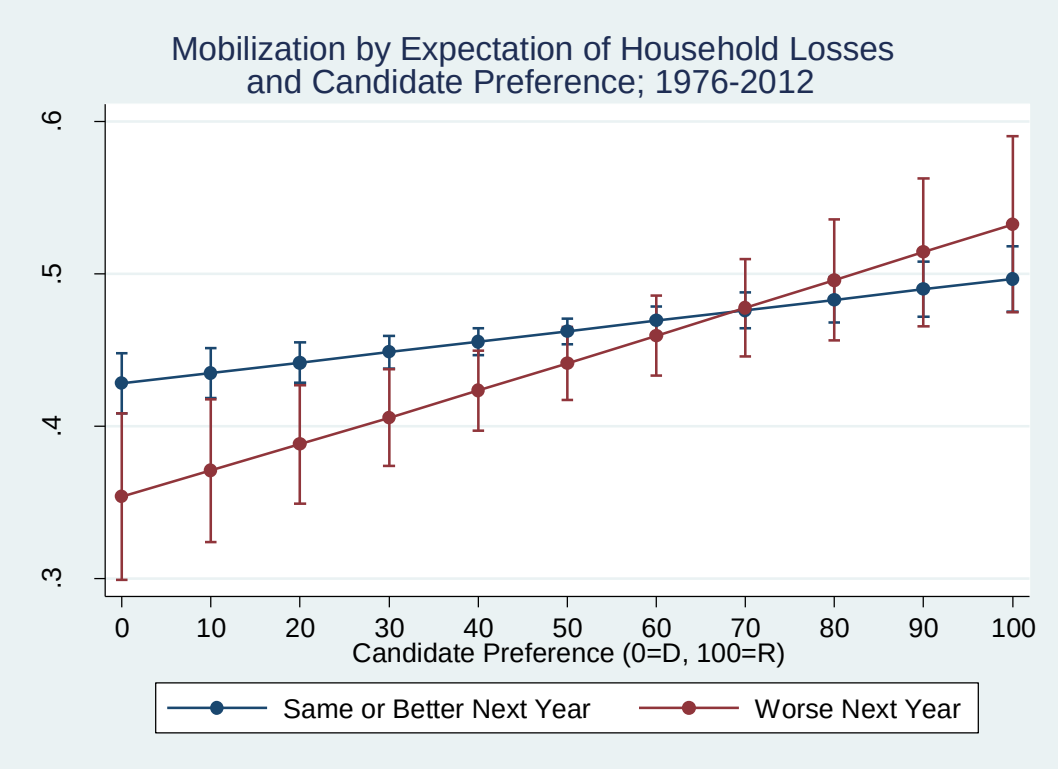

Figure 3.11: Campaign Involvement by Expectation of Household Losses and Candidate Preference (1976-2012)

Granted, a number of unobserved factors may be influencing both candidate support and perceived financial wellbeing. Yet, when combined with the experimental data, the results further suggest that Democrats and Republicans engage with the fear of loss differently – with strong implications for voter messaging and mobilization. Fear of loss can be a strong mobilizing message for Republican supporters, while the specter of financial loss can be a demobilizing message for Democrat supporters.

3.7 Loss Language and the Case of the 2016 Election

These survey results demonstrate that household financial losses – or, more precisely, *perceived* household losses – is mobilizing for conservatives and may actually demobilize liberals. The experimental results presented in this paper also show that people can easily be primed to think about losses in ways that induce similar patterns of political action. How, then, might politicians' language itself (either intentionally or unintentionally) frame the electoral environment and affect voter behavior? The 2016 electoral cycle provides a case study in the mobilizing effects of loss-framed economic messages.

Donald Trump's campaign to "Make America Great Again" bewildered onlookers by its ability to mobilize U.S. citizens who normally stay out of politics. During the 2016 campaign, Donald Trump was frequently cited for his unique use of language, particularly the message that "We will win again. We will win a lot." Yet, in the primary debates, Donald Trump talked about losing twice as much as he did about winning, and this talk about losses captured the country's attention – literally. Donald Trump used language that put listeners in the mindset of thinking (and worrying) about the threat of financial loss. And as Study 1 above demonstrated, while framing issues in terms of losses makes everyone pay attention more, the specter of financial loss is especially effective in getting Republicans to act by evoking a threat response, while it may actually demobilize Democrats.

In the 2016 presidential primaries, Donald Trump consistently framed present and future policy in terms of economic losses – much more so than any other candidate. I analyzed all the primary debate texts through March 6 and counted how many times each

candidate talked about losing (words like "loss", "lose", and "don't win"). Donald Trump talked about losing 2-5 times more than other candidates – once every 350 words or so.[10]

The way Trump talked about losses was also unique. He was the only candidate who primarily talked about loss in a financial context (jobs, the economy) or losing in general (Figure 3.12). Other candidates mostly mentioned losing in the context of armed conflict or the electoral contest itself.

Furthermore, Donald Trump was much more likely to talk about present losses or threaten future losses than other candidates, who instead focused on past loss (the latter framing often was used to emphasize improvements or hope for change) (Figure 3.13). This matters because instead of treating losses as "sunk costs" – past costs from which we can and should move on – Donald Trump's future-oriented language generated additional fear and anxiety – particularly among conservatives – by emphasizing the looming prospect of ongoing loss now and in the future.

[10] This means that if the debate transcripts were printed on double-spaced pages, Trump's words would take up about 100 pages, and on average he would mention losing on at least two of every three of those pages.

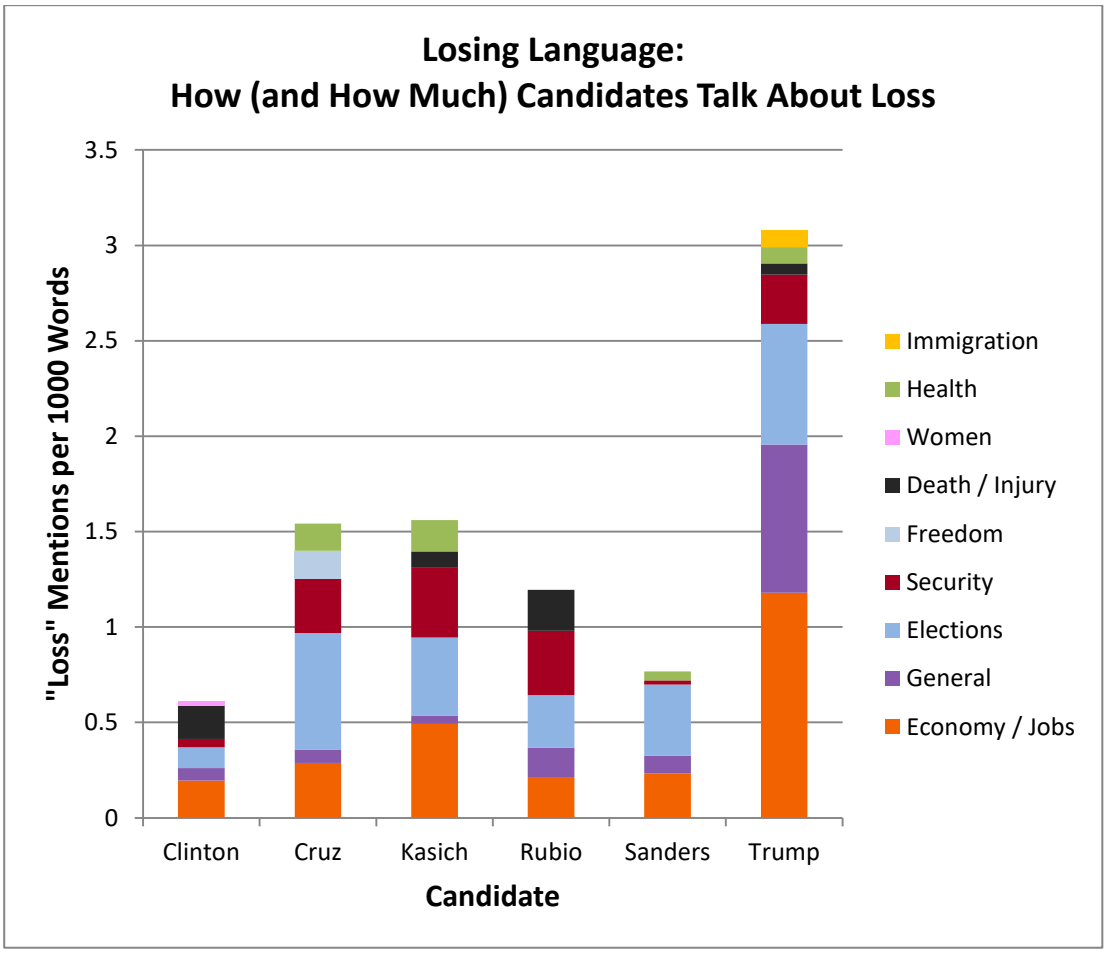

Figure 3.12: How Much Candidates Talk About Loss in 2016 Primary Debates, by Topic

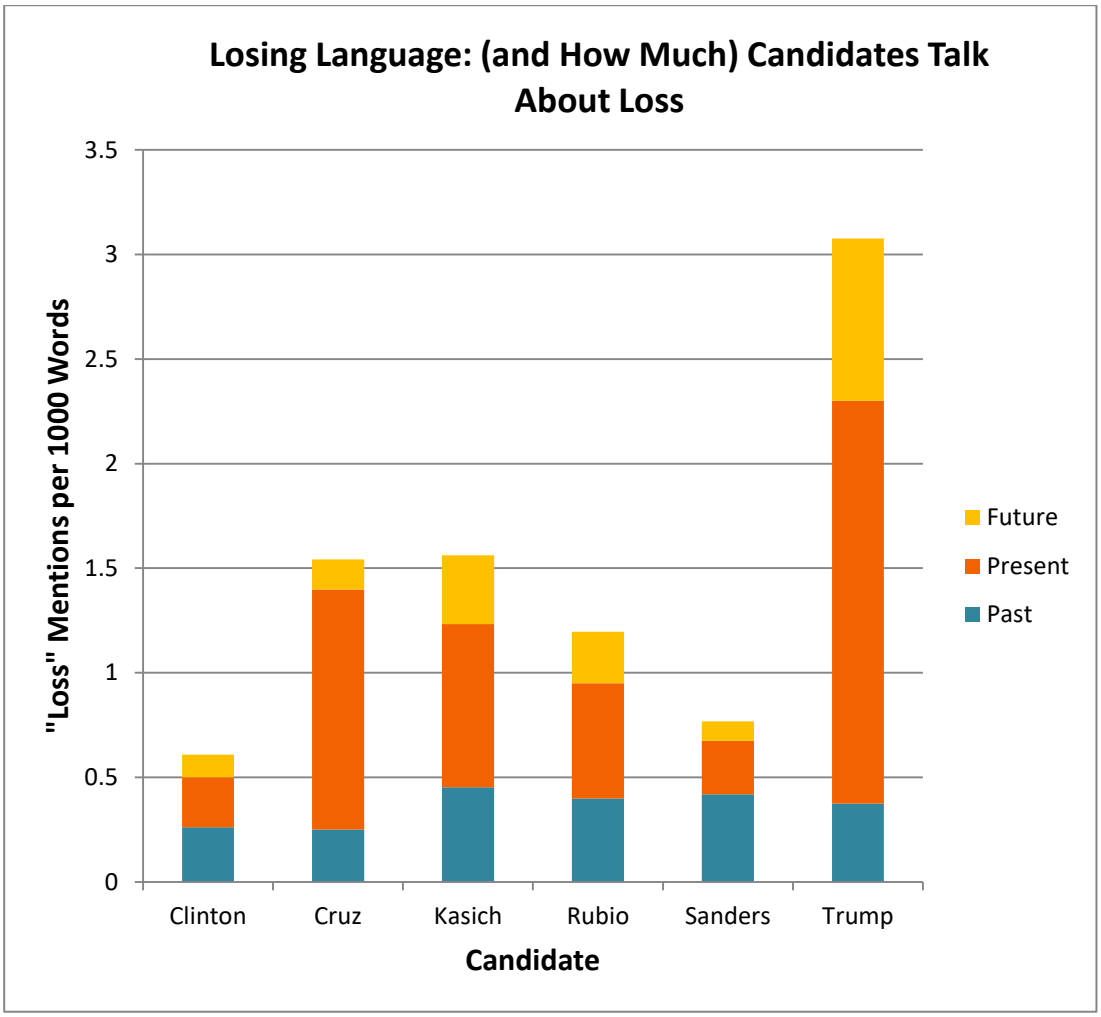

Figure 3.13: How Much Candidates Talk About Loss in 2016 Primary Debates, by Tense

Based on the experimental evidence and survey data presented above, we would expect this visible and vocal framing of U.S. economic conditions to create a priming of threat during the 2016 election period. If that is the case, this loss language would be expected to mobilize conservatives who feel economically threatened, while having limited – or even demobilizing – effects on liberals vulnerable to financial loss.

Finally, this analysis raises the question of whether loss language not only mobilizes conservatives and liberals differently, but whether it can affect candidate choice. As part of Study 2 (above), I experimentally test whether loss language does in fact affect support for a candidate. Drawing from speeches by Donald Trump and Hillary Clinton, I created two candidate statements based on an amalgamation of both candidates' actual speeches. One hypothetical statement emphasized "winning" while the other emphasized "losing". Statements were edited to be as equivalent as possible in length, content, and tone, with an emphasis on gains/losses being the main dimension of variation.

Hypothetical Candidate A

This is a great country.
I want to do everything I can to make us strong and win in the global economy.
We can't take a hands-off approach if we expect to compete and win with everybody.
Here there have been billions of dollars used in recent years used to grow our small businesses and help them succeed.
We win with policies that are good for companies and their workers. We will gain and keep jobs.

———

Hypothetical Candidate B

This country is in trouble.
I want to do everything I can to make us strong and not lose in the global economy.
We can't take a hands-off approach, because right now we lose to everybody.
We don't win.
Here there have been billions of dollars lost in recent years, and our small businesses can't compete.
We are killing ourselves with policies that are no good for companies or their workers. We are losing jobs.

Respondents then were asked which candidate they supported more, using a feeling thermometer. Respondents also reported on the following page whether they recognized either candidate, and if so, to provide their best guess of who that candidate was. Results are

similar regardless of whether I include or exclude respondents controlling for candidate recognition.

On average, respondents across the ideological spectrum preferred the "optimistic" candidate, regardless of whether they were primed with loss or gain frames earlier in the survey. In fact, under a gain frame, conservatives strongly prefer the "optimistic" candidate. Support for the pessimistic candidate only exceeds 50% for loss-treated conservatives when the full sample is used – including those who think they recognize at least one candidate.

As with other modules in Study 2, respondents were randomly assigned to loss or gain treatment conditions (through the use of the TPP free trade agreement scenario and subsequent questions). Loss frames significantly increase support for the pessimistic candidate, a result primarily driven by strong shifts in preferences between gain- and loss-treated conservatives (Figure 3.14).

Table 3.4 presents the correlates of support for the pessimistic, or "loss" candidate. Loss frames increase candidate support, as discussed above. Similarly, people who reported having trouble paying the bills this month (those facing real and immediate financial loss) also were more likely to support the pessimistic candidate.

In addition, results show that respondents who became angrier during the course of the survey were more likely to support the loss candidate. This builds on prior research showing that anger is a mobilizing emotion (Valentino et al. 2011) and indicates that loss – and the affective response it generates – not only can drive turnout, but it can also affect political preferences.

Table 3.4: Support for 'Loss' Candidate

	No Candidate Recognition			Full Sample		
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Loss Treatment	6.595**		4.701	8.555***		6.951***
	(2.859)		(2.896)	(2.040)		(2.065)
Anger Change		0.151***	0.141***		0.108***	0.0987***
		(0.0412)	(0.0415)		(0.0249)	(0.0249)
Anxiety Change		-0.0485	-0.0511		-0.00544	-0.0122
		(0.0391)	(0.0391)		(0.0250)	(0.0250)
Right	0.0360	0.491	0.360	5.180**	4.846**	4.929**
	(2.909)	(2.880)	(2.876)	(2.098)	(2.091)	(2.081)
Worried: Bills	4.418	5.156*	4.684	5.068**	5.197**	4.960**
	(2.931)	(2.888)	(2.897)	(2.099)	(2.090)	(2.081)
Female	-5.922**	-5.039*	-5.109*	-2.411	-2.389	-2.380
	(2.877)	(2.857)	(2.852)	(2.055)	(2.048)	(2.038)
College	-2.684	-2.464	-2.475	-4.675**	-4.246**	-4.449**
	(2.856)	(2.827)	(2.822)	(2.066)	(2.060)	(2.050)
Age	-0.124	-0.165	-0.162	0.0375	-0.00478	-0.000429
	(0.139)	(0.139)	(0.138)	(0.0932)	(0.0933)	(0.0928)
White	4.025	1.949	2.657	1.549	0.807	1.233
	(3.369)	(3.335)	(3.356)	(2.473)	(2.467)	(2.457)
Constant	43.44***	46.56***	44.00***	38.06***	42.04***	38.49***
	(5.622)	(5.341)	(5.557)	(4.095)	(3.941)	(4.060)
Observations	431	431	431	1,006	1,006	1,006
R-squared	0.034	0.055	0.061	0.037	0.045	0.056

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

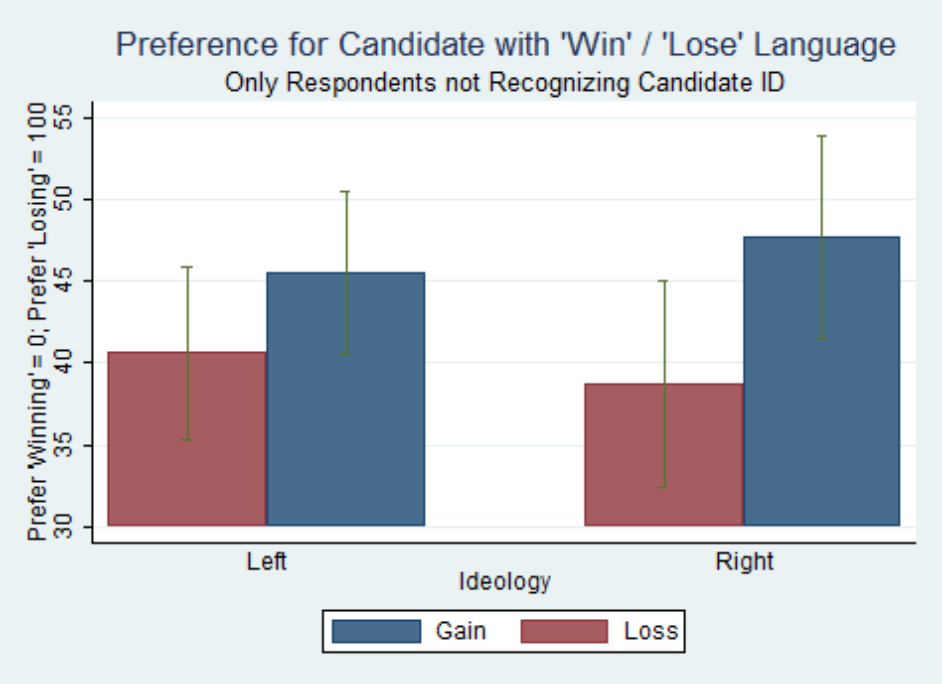

Figure 3.14: Preference for Candidate with 'Win' or 'Lose' Language

3.8 Conclusion

Loss has cognitive effects that are particularly pronounced for conservatives. In the aggregate, loss-framed policies increase attention; this increased attention mediates a decrease in action for liberals and has no effect for conservatives. Conversely, loss frames are mobilizing for conservatives, in part through the mechanism of increased financial uncertainty and anxiety. Loss frames increase conservatives' reported likelihood of taking action in a number of different ways, and they also increase actual action as measured by online petition signing. For conservatives, loss frames also increase the probability of action across a range of mobilizing environments, and they cause more inconsistent risk preferences in "gain" and "loss" domains. Furthermore, loss language increases support for pessimistic candidates,

particularly among conservatives, potentially shedding light on the differential mobilization of conservatives and liberals – and the support for Donald Trump specifically – observed in the U.S. 2016 presidential election.

3.9 Chapter 3 Appendix

Table 3.5: Summary Statistics of Survey Respondents (Study 1)

	(1) Left, T=0		(2) Left, T=1		(3) Right, T=0		(4) Right, T=1	
	mean	sd	mean	sd	mean	sd	mean	sd
Female	0.50	0.50	0.48	0.50	0.47	0.50	0.43	0.50
Age	34.43	11.41	33.06	11.12	34.35	11.53	34.08	11.04
College	0.52	0.50	0.50	0.50	0.44	0.50	0.43	0.50
White	0.74	0.44	0.78	0.42	0.84	0.37	0.81	0.39
Knows Rep	0.37	0.48	0.39	0.49	0.37	0.48	0.35	0.48
Income	33413.80	19794.76	34635.16	22290.39	36370.19	20976.41	34446.38	21513.73
Ideology	2.95	1.40	3.01	1.45	7.30	1.37	7.29	1.45
Observations	288		301		207		197	

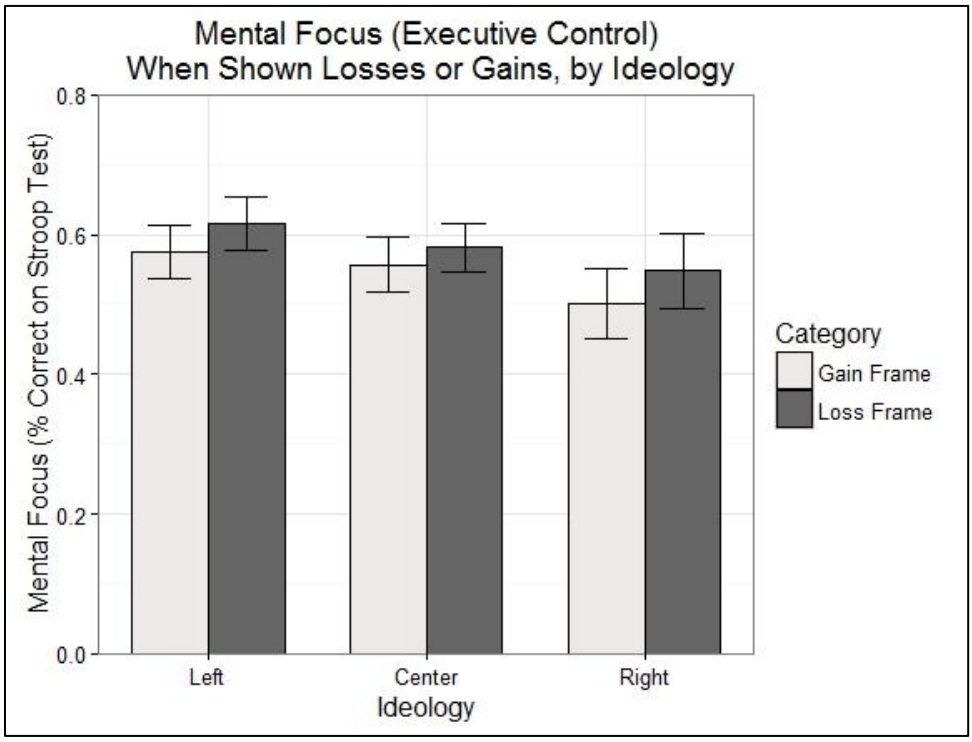

Figure 3.15: Executive Control under Gain/Loss Conditions, by Ideology

Table 3.6: Summary Statistics of Survey Respondents

	(1) Left, T=0		(2) Left, T=1		(3) Right, T=0		(4) Right, T=1	
	mean	sd	mean	sd	mean	sd	mean	sd
Female	0.50	0.50	0.51	0.50	0.46	0.50	0.45	0.50
Age	33.85	11.72	34.33	10.89	36.32	10.80	35.64	10.91
College	0.51	0.50	0.57	0.50	0.51	0.50	0.47	0.50
White	0.78	0.42	0.77	0.42	0.83	0.38	0.73	0.44
Knows Rep	0.42	0.49	0.46	0.50	0.41	0.49	0.39	0.49
Income	32947.36	20463.38	37894.56	23096.26	37860.33	20920.04	36857.35	21833.29
Employed	0.56	0.50	0.62	0.49	0.64	0.48	0.63	0.48
Anger Change	3.39	39.53	17.14	55.47	-0.52	43.20	21.31	54.95
Anxiety Change	11.06	38.88	28.75	53.10	13.79	47.07	32.95	57.84
Ideology	2.85	1.45	2.91	1.49	7.62	1.37	7.37	1.42
Observations	300		311		202		197	

Table 3.7: Correlates of Taking Online Action

VARIABLES	(1) 1	(2) 2	(3) 3
Loss Treatment	0.0632	0.175	-0.285
	(0.134)	(0.218)	(0.270)
Left	0.196	0.288	
	(0.139)	(0.198)	
Loss Treatment X Left		-0.180	
		(0.276)	
Female	-0.188	-0.188	-0.184
	(0.134)	(0.134)	(0.135)
Age	-0.0125**	-0.0125**	-0.0128**
	(0.00630)	(0.00630)	(0.00632)
Income	-9.82e-07	-8.59e-07	-9.08e-07
	(3.24e-06)	(3.25e-06)	(3.25e-06)
College	-0.0403	-0.0375	-0.0305
	(0.141)	(0.141)	(0.141)
White	-0.211	-0.206	-0.199
	(0.159)	(0.159)	(0.159)
Treatment			
Left			
Ideology			-0.0627*
			(0.0358)
Loss Treatment X Ideology			0.0750
			(0.0505)
Constant	-0.0469	-0.116	0.355
	(0.293)	(0.312)	(0.310)
Observations	1,006	1,006	1,006

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

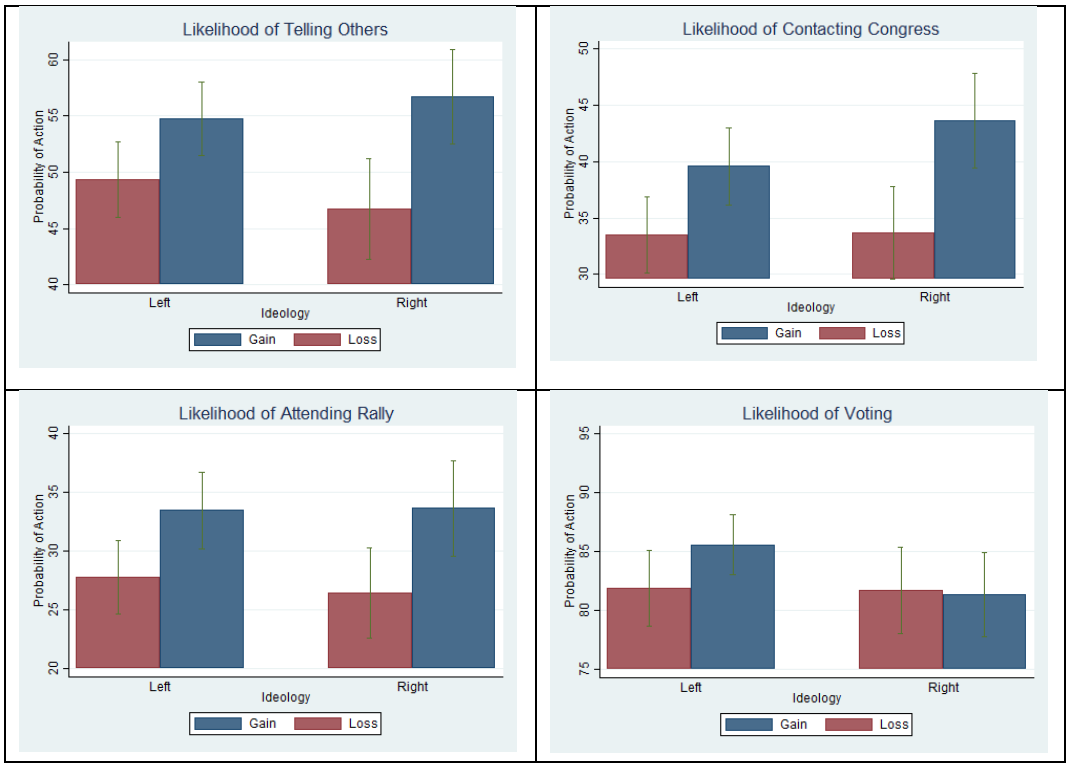

Figure 3.16: Self-Reported Probability of Mobilizing Under Loss and Gain Conditions, by Ideology and Action Type

Table 3.8: Mobilization in Last Year by Loss Expectation and Candidate Preference

VARIABLES	(1) Logit	(2) Logit	(3) OLS	(4) OLS
Worse Next Year	-0.324**	-0.310**	-0.158**	-0.147**
	(0.132)	(0.138)	(0.0652)	(0.0682)
Candidate Preference (0=D; 100=R)	0.00286***	0.00224***	-7.93e-05	-0.000539
	(0.000799)	(0.000833)	(0.000423)	(0.000441)
Worse Next Yr. X Cand. Preference	0.00472**	0.00468*	0.00212*	0.00198
	(0.00239)	(0.00249)	(0.00122)	(0.00128)
Age	0.00349***	0.00463***	0.00282***	0.00335***
	(0.000994)	(0.00106)	(0.000472)	(0.000499)
Female	-0.223***	-0.192***	-0.0976***	-0.0794***
	(0.0340)	(0.0355)	(0.0163)	(0.0169)
College	0.614***	0.478***	0.364***	0.289***
	(0.0393)	(0.0427)	(0.0210)	(0.0226)
White	0.0319	-0.0277	-0.00597	-0.0404*
	(0.0427)	(0.0450)	(0.0200)	(0.0211)
Income Percentile		0.00719***		0.00404***
		(0.000770)		(0.000374)
Constant	-0.480***	-0.771***	1.573***	1.419***
	(0.0756)	(0.0846)	(0.0374)	(0.0411)
Observations	19,398	18,115	19,398	18,115
R-squared			0.041	0.048

Robust standard errors in parentheses
Models include election year control variables
Columns 1-2: Probability of having taking any action
Columns 3-4: Average types of actions taken (0-6)
*** p<0.01, ** p<0.05, * p<0.1

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Chapter 4: Losing it about Losing it All – Income Volatility and Political Action

4.1 Abstract

Under what conditions does the fear of loss disproportionately capture the attention of citizens and ultimately drive political action? This paper employs prospect theory to better understand the (de)mobilizing effects of poverty and economic volatility. Using two lab experiments and survey data from two countries, I demonstrate that people's preference for political action changes when policy issues emphasize future costs, rather than future benefits. Furthermore, findings show that political messages framed in terms of economic losses are particularly influential for the economically insecure, compared to the effects of positively-framed messages. By comparison, rates of political action by the chronically poor and economically stable both show little susceptibility to loss/gain frames.

I show that the specter of future financial loss threat of loss is mobilizing for economically insecure populations in the U.S., drives higher follow-through on one's intention to act in national survey data, and that this effect differs from measures of absolute (static) levels of wealth. However, similar economic threats are found to be demobilizing among economically insecure Nigerians, suggesting that financial threat can trigger enhanced "fight" *or* "flight" responses depending on local conditions for political action. In both U.S. and Nigerian contexts, less economically volatile groups show no change in behavior when faced with losses, and the prospect of gains has little mobilizing effect.

The paper demonstrates that using income as the sole key economic indicator in political analyses may obscure important drivers of political behavior: income volatility also (and independently) explains variation in political action in ways that may prove equally

illuminating for when and why economically insecure populations do (or do not) take political action.

4.2 Introduction

A July 2016 Gallup poll made headlines with its "surprising" insights into support for Donald Trump (Luhby 2016; A. J. Cherlin 2016). This study of over 80,000 Americans found that Trump supporters were not concentrated among the country's poorest, nor were they any more likely than others to be affected by the international trade vilified by Trump. Instead, Trump supporters were slightly more likely to be employed (compared to non-supporters), their incomes were 6% higher, and they are more likely to live in zip codes more reliant on social security. On the other hand, Trump supporters were also less educated, had higher mortgage to income ratios, and were more likely to work in blue collar jobs (maintenance, transportation, production, or construction) (Rothwell 2016).

Nevertheless, these same results which surprised the pundits are consistent with findings from psychology and behavioral economics showing that people behave differently when confronted by the possibility of loss. In short, Trump supporters were doing just well enough that they could be concerned about losing out. Furthermore, both their current economic environment and the surrounding political discourse reinforced the fear of economic loss in a way that was directly relevant to their lives. Indeed, the downwardly mobile appear most receptive to Trump's positions (Cherlin 2014). Under what conditions, then, does the fear of loss disproportionately capture the attention of citizens and ultimately drive political action?

Prospect theory offers insights into how people view the risks and rewards of political participation, and thus this paper uses prospect theory to better understand the (de)mobilizing

effects of poverty and economic volatility. The paper demonstrates that people's preferences for political action – particularly, their risk tolerance – are different in the domains of losses versus the domain of gains. Furthermore, findings show that messages framed in terms of economic losses mobilize the economically insecure at different rates than positively-framed messages, possibly by emphasizing the threat of falling from their current relatively better position. By comparison, the chronically poor and economically stable – groups that have less regular exposure to real financial volatility – both show little susceptibility to loss/gain frames. Furthermore, results show that frames can enhance people's perception of financial volatility, mediating changes in one's propensity to mobilize.

Two lab experiments and national survey data in the U.S. show that framing political issues in terms of losses is more mobilizing for citizens with high income volatility. On average, the chronically poor are not significantly sensitive to framing effects (emphasizing losses versus gains) or to economic messages that seek to manipulate affective response. The studies presented here show that, among the financially insecure, both interest in and follow-through on political action can be increased by loss-framed messages. Loss-framed messages themselves increase perceptions of financial instability, mediating mobilization effects. In sum, the U.S. results suggest that the economically insecure are less likely on average to be politically engaged than the chronically poor, but they will mobilize strongly when presented with the possibility of losing what they have.

The paper presents parallel data from a survey experiment conducted on a representative sample of young adults from four Nigerian states. These results also find that priming people to think about financial loss increases perceptions of personal economic volatility over time, and that these perceptions mediate one's self-reported interest in taking political action. In the Nigerian context, though, we find that priming thoughts of financial

loss is demobilizing, compared to groups not primed to think of financial loss and those who are financially more stable. These results suggest that the threat of financial loss consistently increases personal perceptions of economic volatility, and that these perceptions change how one makes decisions about political action. However, this threat of loss may catalyze "fight" *or* "flight" responses (heightened action or inaction) depending on the perceived utility or futility of political action – what is the gap between current and future standing, what is the probability of success, and is it worth paying the cost of action to try to avert a possible loss?

The paper demonstrates that using only static measures of financial wellbeing excludes explanatory power that comes from measures that track financial expectations over time (particularly future expectations). Financial volatility responds to frames in ways that are distinct from absolute poverty, and evidence suggests that in some contexts, the two measures may actually be inversely correlated with political participation.

4.3 Theory

Household income, the workhorse measure of (and control for) financial welfare, does not consider how financial *insecurity* may also affect behavior. For example, over 40% of Americans say they would struggle to pay an unexpected expense of $2000 if they had 30 days to obtain the money (Lusardi, Schneider, and Tufano 2011). Many of these individuals have earnings that exceed poverty thresholds, and yet they are living on the financial edge – liable to fall into hard times in the event of a financial shock or unexpected expenses.

Drawing from theory about economic and political behavior, I predict that the income-insecure and the chronically poor will engage in politics in different ways. Evidence from a range of disciplines suggests that these two groups will have different levels of risk tolerance,

different preferences, and different triggers that affect one's likelihood of taking political action.

One area of likely yet under-explored difference is these two groups' responses to loss-framed messages. Prospect theory predicts that people dislike losses more than they like gains (Tversky and Kahneman 1981; Kahneman 2013). Consequently, people are more willing to take risks to avoid losses, while they prefer certainty to risk when faced with the possibility of gains (Quattrone and Tversky 1988). This widely-demonstrated preference for avoiding loss (Camerer 2003) results inconsistent preferences and behaviors that avoid losses even at the expense of a more optimal choice (Shafir and LeBoeuf 2002).

Politically, individuals also may be more influenced by messages that emphasize losses over gains (Kuklinski, Quirk, et al. 2000; Jerit 2009). Negative affect resulting from threat shapes public opinion (Lerner et al. 2003), and loss-framed arguments are particularly effective in shifting public opinion when people are experiencing heightened anxiety due to the persuasiveness of bias-congruent frames (Arceneaux 2012). Less is known, though, about how one's sensitivity to loss framing is affected by one's actual and perceived insecurity. Nor do we have a strong understanding of any downstream implications of these effects for political action, even though public policies and political outcomes are often discussed in terms of costs and benefits[1] or winners and losers.

I argue that the prospect of a policy causing personal loss (in this case, financial loss) elevates one's anxiety and triggers a threat response. To date, anxiety's influence on decision-making (rather than opinion, information seeking, or intent to act) has been explored more deeply in psychology and economics as compared to political science (Lerner et al. 2015). Anxiety-driven cognitive responses have downstream effects on decision-making (Naqvi,

[1] Note that cost/benefit language may drive behavior ways that are similar to, yet distinct from, loss/gain language (Kahneman 2013).

Shiv, and Bechara 2006; De Martino et al. 2006; Haegler et al. 2010), in part by causing reappraisal of value assessments (Phelps, Lempert, and Sokol-Hessner 2014). In behavioral economics and psychology, financial stress has been shown to affect decision-making through altered cognition and time preferences (Haushofer and Fehr 2014; Mullainathan and Shafir 2013). When faced with the threat of scarcity, the brain diverts a greater amount of its attention to solving the immediate problem (Radel and Clément-Guillotin 2012); this is called *cognitive tunneling.* Cognitive tunneling can increase the perceived magnitude of an immediate threat, holding actual characteristics constant.

I expect the specter of personal financial losses, combined with the increased perception of threat due to cognitive tunneling, is most potent for the financially insecure, increasing both one's desire to take political action and their actual level of political action. Firstly, when people are faced with possible losses, prospect theory predicts higher risk tolerance – hence a willingness to pay the cost of action for the chance of change and a bigger payoff. Secondly, threat and anxiety both increase frame persuasiveness, leading to greater perceived issue salience. Finally, the cognitive bias generated by loss aversion should interact with perceived threat to increase action, even when political action is not expected to be the optimal, rational response.

Following from these findings, then, I expect that people who are income insecure (those who experience income volatility around –but necessarily below – the poverty line) are also more likely to be susceptible to loss frames, as compared to those experiencing chronic poverty or financial stability. Since the income-volatile cohort has first-hand experience with both good and hard financial times, they will be more risk-seeking (and action-oriented) when presented by potential losses: this group perceives potential losses more acutely, so they will be more willing to take risks to protect what they have, even when the possibility of loss is

purely hypothetical. By comparison, while people in chronic financial hardship may be motivated to act for various reasons (issue salience, affect, etc.), they will not be affected by loss frames in the same way, as they are already operating in a mindset of scarcity.

Recently political scientists have conducted a host of studies to understand how income inequality affects political participation in the U.S., Europe, and more globally. This avenue of inquiry has raised as many questions as it has answered. While a grievance theory of political action predicts that greater inequality will correspond with *higher* political engagement (Gurr 1970)[2], limited resources (Schattschneider 1960), and the perception that politicians do not respond to the poor (Bartels 2009) generate the expectation that greater inequality will actually result in *lower* political engagement, particularly among the poor.

Some research supports the expectation of decreased political engagement using data from the United States (Solt 2010) and Europe (Solt 2015; Lancee and Van de Werfhorst 2012), while other studies find evidence that inequality increases political engagement (Jaime-Castillo 2009).

In the aggregate, though, results are inconclusive at best. Analyses of large numbers of elections (Stockemer and Scruggs 2012), democratic transitions (Haggard and Kaufman 2012) and meta-analysis of the inequality literature (Stockemer 2016) find no consistent relationship between inequality and political participation, either in the U.S., Europe, or the Global South. In the U.S., class and race cloud any clear relationship between inequality and turnout (Gelman, Kenworthy, and Su 2010), and in the European Union there appears to be large variation in trends depending on country GDP, country-level inequality, and one's relative income within each specific country's financial context (Jensen and Jespersen 2017).

[2] See also: Russett 1964; Scott 1977; Paige 1978. More recent work has made similar assertions (Petersen 2001; Blattman and Miguel 2009) and used case studies to illustrate this linkage (Stewart 2002).

Looking more globally, Collier, Hoeffler, and Soderbom (2004) show that unequal societies are no more likely to experience conflict, although such conflicts appear to last longer, and Fearon and Laitin (2003) find no evidence for inequality being linked to civil conflict. New research suggests that horizontal inequality (differences between domestic groups) may be a stronger driver of conflict than vertical inequality (differences between government elite and the general population) (Ostby 2008; Cederman, Weidmann, and Gleditsch 2011).[3] Cramer (2003, 2007) emphasizes that such analyses cannot demonstrate whether the relationship being measured is with inequality itself or with underlying causal factors (like, as this paper posits, a sensitivity to future losses) that may be correlated with both inequality and conflict.

Recent survey work has offered new insights, though, by studying the microfoundations of inequality's effects. For example, voter attitudes toward inequality may vary based on one's relative position (Lü et al. 2012, Jensen and Jespersen 2017). Voters are sympathetic to policies that help people more disadvantaged than they are (thereby worsening these voters' relative advantage), but voters oppose policies that make them worse off compared to a more advantaged sector of the population.

I build on these findings and assert that it is not the degree of inequality that affects one's probability of taking political action, but whether (and how far) a person perceives that their position is worsening. In other words, citizens are loss averse and they care about how their future self is positioned relative to the current self. This is similar to relative deprivation theory (Walker and Pettigrew 1984; Smith and Pettigrew 2015) but for an individual across time, rather than for an individual vis-à-vis another within a set time period. The mechanism

[3] Cross-country studies of inequality's relationship to political mobilization (and the direction of causality) have been limited by missing data, variable data quality, and cross-national challenges of measuring inequality accurately (Brandolini and Smeeding 2011).

of loss aversion can help explain why we see both poverty and inequality associated with higher rates of political participation sometimes, but not always – a key factor has been overlooked. This omitted factor – financial volatility – predicts the status quo when people expect no change or even gains in the future, and a reevaluation of the merits of action when people – particularly the financially insecure – expect (or are primed to consider) losing what they have.

An important caveat here is that while the threat of financial loss is expected to trigger a threat response, this may not result in action in all cases. Fight (action) and flight (inaction) are both possible threat responses (Liddell et al. 2005). I expect that while financial threat will cause a reappraisal of whether to act, the outcome of this reappraisal depends on variables such as the expected change in circumstances (net expected cost/benefit) and the perceived probability that action will change the political outcome. Ray (2006) discusses how action depends on the size of the "aspirations gap" – if one's current situation is too close or too far from where one aspires to be, one is not properly incentivized to pay the cost of action. Rather, action occurs if the goal represents a distinct but achievable change from the status quo.

Similarly, the decision to act when confronted by the threat of loss should also depend on the perceived size of the expected loss[4] and the perceived probability that action will affect the outcome.[5] A strong predictor of political action in the absence of catalyzing events is one's past level of engagement (see, for example, Fowler (2006) for a discussion of voting as habit). When decisions are made based on past habit with little conscious thought, cognitive science calls this automatic, or System I processing. Threat shifts the brain from automatic to

[4] Although the expectations for loss are not merely symmetrical to expectations for gains or aspirations, as discussed below.

[5] I emphasize *perception* here because as the results below show, perception of these values is malleable and at times endogenous to the threat environment itself.

deliberative (System II) processing, causing a reevaluaiton of the merits of action. I expect that also this occurs in political spaces; threat- or loss-framed messages should promote deliberative rather than automatic decision-making about political action. Additionally, the same threat environment may alter one's *perception* of the value assigned to variables in a decision model, such as expected costs and benefits of action, level of altruism, and perceived probability of that action will lead to success.

Furthermore, prospect theory has shown experimentally in non-political contexts that one's preference for risk or certainty depends on the expected size of the payoff and the amount of uncertainty faced by the decision-maker, *even when in expectation risk and certainty will yield the same payoff* (Kahneman and Tversky 2000). People are more risk-seeking in situations with a high probability of loss (also with larger overall losses in expectation), while they are more risk averse in situations with a low probability of loss (smaller losses in expectation).

These patterns should also apply to decisions about political action. If we consider action to be the riskier choice (one pays the cost of action without certainty of a favorable change), then we will expect to see mobilization in situations where there is a higher probability of loss or the expected loss is larger. We expect to see inaction when the probability of loss or the size of the loss is small.

In sum, people experiencing income volatility (or who perceive that they are) will be more affected by loss-framed messages, increasing anxiety and influencing the decision to act in ways that may deviate from usual behavior. Also, loss-framed messages increase one's perception of personal income volatility, and this change in perception should mediate changes in political behavior. I test these expectations first in the United States using a pair of experiments and national survey data. Then, I test my theory in a comparative context, using

similar questions and experimental design applied to a representative survey of Nigerian young adults.

4.4 Study 1: Loss Frames Increase Action Intent for the Economically Vulnerable

4.4.1 Procedure

In an online study conducted in May 2016, I crafted gain and loss treatment frames designed to translate behavioral economic concepts into a realistic policy space. This study recruited 1010 participants via Amazon Mechanical Turk, with treatment conditions randomized across study participants. The sample skews poorer, younger, and more Caucasian than the general population. While the study is not population-representative, it does offer extra clarity on how this specific demographic – poorer, white Americans – responds to the threat of financial losses.

I measure economic insecurity in multiple ways. In addition to household income, I also assess income volatility by asking respondents how often they have trouble paying their household's bills. Respondents are considered to be financially insecure (with volatile incomes) when they report having concerns about paying their bills every 2-6 months. Respondents who are concerned about bills every month are considered to have chronic financial hardship; respondents reporting concerns about bills once a year or less are considered to have low financial hardship. The sub-sample in each treatment condition contains approximately 300-350 participants and appears balanced on covariates (see Appendix, Table 4.4).

While many core behavioral experiments at the heart of Prospect Theory have been replicated numerous times, it is not always clear how these experiments (and the numbers they use) would translate into a political decision space. Therefore, to explore how prospect theory

applies to political issues, I designed parallel treatment conditions to meet the following criteria: 1) Quantified gains/losses in equivalent, measurable units for both the gain and loss domains, 2) Presented the same quantity of gains/losses in the two treatment conditions for which 3) Evidence exists suggesting that both the gain/loss frames are realistic, and 4) Gain/loss policy frames did not closely align with partisan ideology.

Ultimately, I created a treatment frame that satisfied these conditions by focusing on international trade. Free trade is an issue that does not cleanly follow party lines, and it allows both gains and losses to be quantified in terms of jobs and cost of goods. The treatment language is identical except for the gain/loss terminology, and because of expected short- and long-term market changes predicted by free trade, both the gain and loss language are arguably accurate:

> *The Trans-Pacific Partnership (TPP) is a new trade agreement between the US and 11 other countries. After years of negotiation, the TPP was recently finalized. Now, it's up to the U.S. Congress to ratify the trade deal. Soon, Congress will decide whether to ratify this free trade agreement.*
>
> *If the TPP is ratified, the U.S. stands to* ***[gain/lose]*** *a large number of jobs, and we will* ***[gain/lose]*** *many U.S. businesses. The TPP also will cause wage [gains/losses] for certain job sectors, and consumers will spend* ***[less/more]*** *money on certain products. The* ***[gains/losses]*** *from this trade agreement will affect millions of Americans.*

While past research has found evidence of sociotropic preferences on international trade (Mansfield and Mutz 2009), a close examination of the data shows simultaneous evidence of simultaneous importance of how policies are *perceived* to affect one's family income. Given that this past research has focused on political preferences between candidates, rather than likelihood mobilization, an opportunity exists to deepen our understanding of how the issue of losses from trade shapes political behavior.

In my study, I measure the likelihood of taking action in a range of political environments (both with abstract payoffs and with payoffs directly linked to trade). Different political environments present different levels of risk for potential participants, and different policy issues may result in net gains or net losses for individuals. Kahneman and Tversky developed what they term the "Fourfold Pattern" to assess people's preferences in four different domains: high / low probability outcomes interacted with the prospect of gains / losses. They test people's preference for risk or certainty in each of the four domains by presenting two monetary options that are equivalent in expectation (one option involving risk, the other involving certainty).[6] Previous work has found that in the gain domain, people generally become more risk averse (preference for the certain outcome, even if it is smaller) as the probability of winning increases; conversely, in the loss domain people become more risk seeking (preference for taking a chance, even if the loss is larger) as the probability of losing increases.

How does priming people to think about losses affect interest in taking action across these four domains? Recent research on bias-congruent frames suggests that loss primes will be more mobilizing when people are presented with issues in the loss domain (Arceneaux 2012). To test this expectation – as well as the theory that conservatives are more responsive to loss frames – I adapt Kahneman and Tversky's Fourfold Pattern to link payoffs to policy alternatives.

For each of the following domains (Figure 4.1), respondents in this study were told "Imagine the government is choosing between two policies that would have the following effects on your household finances. Which policy do you support more?" Then, for each

[6] For example, in the high probability x loss domain, respondents are asked to choose between a 95% chance of losing $10,000 or a 100% of losing $9500.

domain they were asked to report how likely they would be to take political action, advocating that the government adopt their preferred policy over the alternative.[7]

To measure how the loss-framed policy affected respondents' level of anxiety (proxying for fear or threat), I asked respondents questions adapted from the Positive Affect Negative Affect Schedule (PANAS) (Watson, Clark, and Tellegen 1988). Respondents were asked the same battery of questions at the beginning and end of the survey go gauge how negative affect (especially anxiety) changed during the experiment.

High Probability GAIN: 95% chance to gain $10,000 (and 5% chance to gain nothing) *versus* Gain $9500 for sure	**High Probability LOSS:** 95% chance to lose $10,000 (and 5% chance to lose nothing) *versus* Lose $9500 for sure
Low Probability GAIN: 5% chance to gain $10,000 (and 95% chance to gain nothing) *versus* Gain $500 for sure	**Low Probability LOSS:** 5% chance to lose $10,000 (and 95% chance to lose nothing) *versus* Lose $500 for sure

Figure 4.1: Domains by High/Low Certainty and Expected Personal Gain/Loss

4.4.2 Results

I find that while anxiety increases for all under loss treatment, effects appear most pronounced for people with variable financial security (Figure 4.2). While the differences

[7] Question language: "Political advocacy can take various forms (signing petitions, contacting your representative, sharing your opinions, attending a rally, etc.). Would or wouldn't you want to advocate for the government to adopt your preferred policy (over the alternative choice)?"

between the cohorts are not significant, the trends provide support for the role of increased anxiety in downstream decision-making.

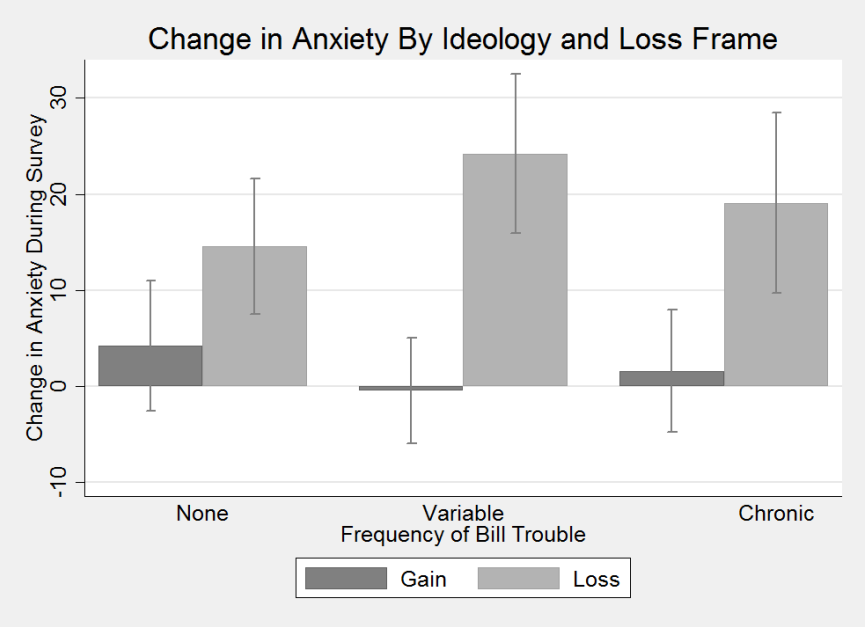

Figure 4.2: Change in Anxiety by Ideology and Loss Frame

Figure 4.3 shows that the income-insecure cohort is the only cohort with significantly different preferences for taking political action under loss and gain treatments. Respondents with variable financial hardship reported a significantly higher probability of taking action to support their preferred policy after being shown loss-framed information about the TPP.[8] Interestingly, the difference in likelihood of action is found regardless of the gain/loss domain and the riskiness of the choice. Also, we see these effects even though the two policies were generic (only stating that one's household income would be affected) and that the effects were equal in expectation – only one involved risk and the other involved certainty.

[8] "Political advocacy can take various forms (signing petitions, contacting your representative, sharing your opinions, attending a rally, etc.). Would or wouldn't you want to advocate for the government to adopt your preferred policy (over the alternative choice)?"

By contrast, the probability of acting to promote one's favored policy choice (risk versus certainty) remains constant for the bill secure and the chronically insecure, regardless of prior framing effects. These trends hold regardless of whether respondents supported the risky or certain policy option.

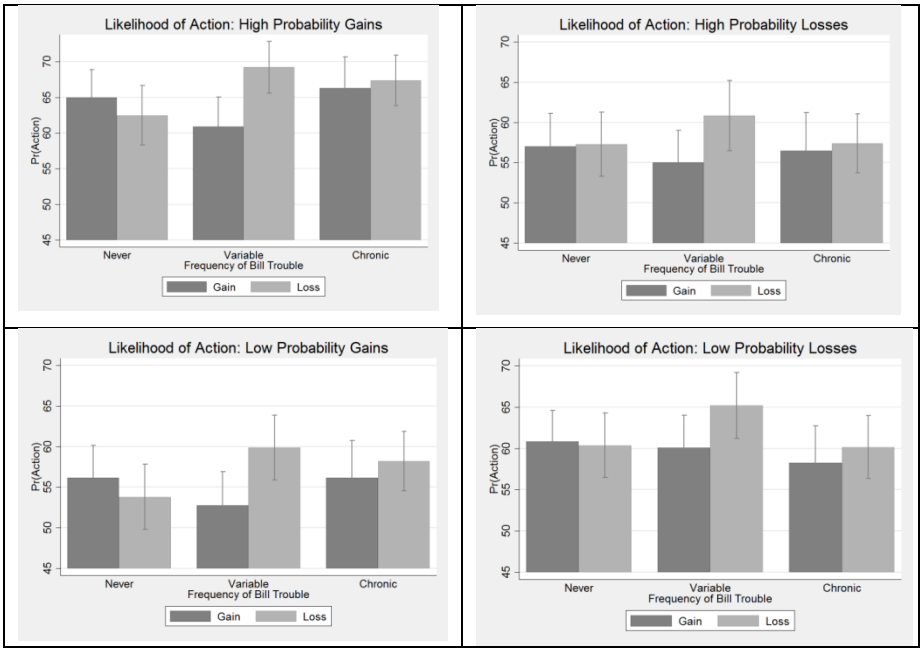

Figure 4.3: Likelihood of Action by Gain/Loss and High/Low Certainty Domains

Loss frames elevated anxiety the most during the survey (and compared to gain frame changes) for the variable financial hardship group. Mediation analysis finds that an increase in anxiety during the survey mediates the loss-framed treatment's mobilizing effect (Figures 4.5-4.8, Appendix). An increase in anxiety during the course of the survey mediates 32% and 37% of the total effect respectively for high and low probability gain domains. The mediating effect is similar for loss domains: 36% of the total effect mediated for high probability losses and 28% for the low probability loss domain. All results are significant at 95%.

It is likely that elevated anxiety here proxies for (or moves in tandem with) perceived financial threat. Where the threat of financial loss is greater, the likelihood of mobilization is also greater. However, this causal chain is not fully identified in the first study, so we turn to a second study for further evidence.

4.5 Study 2: Perception of Income Volatility Mediates Loss's Effect on Action

4.5.1 Procedure

I conducted a separate online study with 994 participants via Amazon Mechanical Turk in April 2015. Half of the sample was randomly assigned vignettes comprising a "loss" treatment, while the other half of the samples shown vignettes comprising a "gain" treatment. These scenarios discussed a proposed federal policy (increasing the federal gas tax) and then framed the policy in terms of either gains or costs.[9] Respondents were asked to complete a series of open responses and reflection tasks to strengthen the framing effect. The sample is balanced across the two treatment conditions.

As in Study 1, respondents' financial wellbeing was measured in multiple ways. In addition to household income, respondents' *perception* of income volatility was measured on a 9-point scale (household income in the last 12 months, ranging from "very predictable" to "very unpredictable"). This variable is used as a proxy for perceived financial volatility (financial threat).

[9] "Gas prices were recently lower than they have been in 4 years, so the US government is considering whether it's time to increase the federal gas tax. One proposal is to increase the federal gas tax by $0.35 per gallon." [**Loss frame:** "More gas tax revenue would raise federal funds for transportation infrastructure, which has experienced a significant decline. Funds will enable the country to repair roads and highways, fix bridges that are structurally unsound, and improve public transit. The benefits of this tax increase will affect millions of Americans. " / **Gain frame:** Raising the federal gas tax by $0.35 per gallon would mean paying an extra $3.50-5.00 every time a person fills the tank. It would also increase the cost of food and other goods by raising transport costs. Over time, a gas tax will most affect people on low or variable incomes. The costs of this tax increase will impact millions of Americans."

Instead of simply measuring respondents' self-reported intent to take action on this political issue, participants were then given the opportunity to immediately support or oppose the policy change by signing an online petition on the advocacy website Change.org. The decision to sign an online petition during the course of the study is the experiment's key outcome variable, operationalizing political mobilization at the individual level. I track click rates to access the petition website, and this value serves as my measure of actual political mobilization.[10] The dependent variable is political action (rather than issue support or intent to act); respondents received simultaneous opportunities to support or oppose the issue, and rates of action are presented here in the aggregate, regardless of issue support or opposition. Consequently, while issue opinion, strength of sentiment, and personal relevance of issue are all measured in the study, the analysis presented here focuses specifically on the effect of loss/gain framing on political behavior.

4.5.2 Results

Table 4.1 shows that respondents who reported more unpredictable income were more likely to take action and the sign the online petition. This effect holds when controlling for other demographic characteristics such as education. Absolute household income and income variability are frequently correlated, and we see in Column 3 that adding household income decreases the significance of the variability coefficient slightly (although the effect's magnitude remains almost as large as in previous regressions).

[10] To protect respondent anonymity, I am unable to link specific survey responses with personal data provided to Change.org, the website where I made these petitions available.

Table 4.1: Unpredictable Income Correlates with Action

VARIABLES	(1)	(2)	(3)
Unpredictable Income	0.0852***	0.0743**	0.0637*
	(0.0312)	(0.0317)	(0.0333)
Age		0.00972	0.00990
		(0.00709)	(0.00710)
College		-0.339**	-0.293*
		(0.164)	(0.170)
White		-0.0316	-0.0234
		(0.200)	(0.201)
Female		0.360**	0.349**
		(0.164)	(0.165)
Income			-4.44e-06
			(4.34e-06)
Constant	-1.719***	-2.012***	-1.852***
	(0.150)	(0.321)	(0.357)
Observations	994	993	993

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

When it comes to the mobilizing effects of financial loss, perception matters as much as reality – and loss frames themselves can alter one's perception of financial insecurity. Table 4.2 shows that the loss treatment condition caused respondents to self-report significantly more unpredictability in their income over the last 12 months. The effect size is the equivalent of a 0.3-point increase in unpredictability on a 9-point scale.

Loss frames increase people's perceived income volatility, and greater reported income volatility correlates in turn with a higher probability of political action (actual action, rather than self-reported intent). Mediation analysis finds that perceived income volatility

indeed mediates the effect of loss frames on political action: volatility mediates 6% of the total effect, significant at 94% (Figure 4.9, Appendix).[11]

These results provide further evidence that income volatility – regardless of income level – is mobilizing, and that loss-framed issues can drive higher participation in part by increasing one's *perception* of income volatility.

Table 4.2: Loss Frame Increases Perception of Unpredictable Income

	(1)	(2)	(3)
VARIABLES	1	2	3
Loss Treatment	0.319**	0.307**	0.313**
	(0.157)	(0.155)	(0.148)
Age		-0.0166**	-0.0137**
		(0.00711)	(0.00680)
College		-0.641***	-0.186
		(0.156)	(0.156)
White		0.111	0.168
		(0.191)	(0.183)
Female		0.468***	0.344**
		(0.158)	(0.152)
Income			-3.59e-05***
			(3.68e-06)
Constant	3.601***	4.165***	5.103***
	(0.111)	(0.292)	(0.295)
Observations	994	993	993
R-squared	0.004	0.036	0.121

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.6 National Evidence (United States)

If the threat of financial loss mobilizes people at higher rates, we should see evidence of this in national-level data. The 2012 American National Election Study (ANES) provides an opportunity to test whether the perception of financial loss in one's household affects

[11] "Binary mediation" STATA package. Similar results (90% significance) obtained using the "Mediation" STATA package.

political participation in ways consistent with the experimental results above. The ANES is a nationally representative survey conducted in two waves. In the first wave, respondents provide details about their political beliefs as well as descriptive statistics. Participants indicate how likely they are to vote in the upcoming 2012 general election. Then, after the election, respondents are recontacted to determine whether they actually voted or not.

Most studies analyzing voting behavior use intent to vote or reported voting behavior as the dependent variable in their analysis. However, my analysis seeks to answer different question: Who are the people who actually follow through on their intent to vote? Thus, the dependent variable used here is binary, where respondents are given a value of 0 if they are "well-intentioned non-voters" -- people who intend to vote but to not do so.[12] Respondents who intend to vote and report doing so are coded as 1. We will call this group our "determined voters".

Also in the first survey round, respondents were asked questions about their household income, as well as current and future financial expectations. First, they compared financial wellbeing now to a year ago ("We are interested in how people are getting along financially these days. Would you say that [you/you and your family living here] are BETTER off or WORSE off than you were a year ago?"), and then they reported their expectation of financial wellbeing a year from now ("Would you say that [you/you and your family living here] will be BETTER off or WORSE off a year from now?"). Both questions measure perceived financial stability (the former looking at perceptions of the past, the latter assessing expectations about the future), rather than anchoring the response on quantifiable measures of wellbeing. This is actually desirable, as the measure captures one's *perception* of financial

[12] If a respondent reports a >50% likelihood of voting, s/he is coded as intending to vote.

insecurity. I expect that people anticipating financial loss will perceive themselves to be in a threatened financial position – and thus will be more likely to mobilize than other groups.

As conceptualized here, perceptions of income volatility over time are causally distinct from levels of wellbeing (either real or perceived). It is the *variability* over time that makes one susceptible to loss-framed messages, due to bias congruence. The ANES also provides a static measure of perceived financial wellbeing[13], allowing for a comparison of how static and time-variant measures of welfare correspond with political action. In fact, the static measure of financial worry and the expectation of financial wellbeing next year compared to now are only correlated at 0.15, suggesting that both measures are appropriate to include in the analysis.[14]

4.6.1 Analysis

In Table 4.3, we look at what types of people are more likely to be "determined voters" – those who say they want to vote and actually follow through on their intent. Column 1 shows that static measures of poverty (household income and current financial worry) are both correlated with a lower likelihood on following through with one's intent to vote. These results are consistent with other work showing that financial anxiety causes a gap between intention and action when it comes to political behavior (see Chapter 1).

Controlling for actual and perceived current financial wellbeing, though, we see that perception of change in financial status over time still matters–with an effect signed in the opposite direction. Column 1 appears to suggest that reporting a worse financial situation this year compared to last year correlates with being a determined voter. Columns 2-3 show that

[13] "So far as you and your family are concerned, how worried are you about your current financial situation?"

[14] 9% of people not worried about their finances expect their financial situation to be worse next year, compared to 18% of people who are worried about their finances. The sample size is large enough that comparing these subgroups still yields statistically meaningful results.

the actual variable driving this effect is the perception that next year will be worse than this year. While the two variables are correlated, it appears that the retrospective assessment of household wellbeing is predictive of being a determined voter only insofar as it is correlated with future expectations. When future expectations are added to the model, magnitude and significance on the retrospective welfare variable drop.

Table 4.3: Fear of Future Loss and Higher Voter Follow-Through

	(1)	(2)	(3)	(4)	(5)
VARIABLES	1	2	3	4	5
Worse Now vs. Last Yr.	0.133**		0.0435		0.0428
	(0.0672)		(0.0689)		(0.0852)
Worse Next Yr vs. Now		0.275***	0.259***	0.303**	0.287**
		(0.0937)	(0.0982)	(0.120)	(0.122)
Worried About Finances	-0.160**	-0.118*	-0.135*	-0.196**	-0.208**
	(0.0729)	(0.0696)	(0.0727)	(0.0780)	(0.0812)
Household Income	1.58e-05***	1.59e-05***	1.59e-05***	1.02e-05***	1.03e-05***
	(3.31e-06)	(3.37e-06)	(3.37e-06)	(3.70e-06)	(3.69e-06)
Female				0.516***	0.517***
				(0.193)	(0.194)
White				0.243	0.230
				(0.221)	(0.225)
College				0.286	0.293
				(0.216)	(0.216)
Ideology				-0.0290	-0.0345
				(0.0605)	(0.0626)
Employed				-0.464**	-0.456**
				(0.188)	(0.189)
Constant	1.559***	1.698***	1.686***	1.821***	1.826***
	(0.130)	(0.147)	(0.149)	(0.386)	(0.390)
Observations	3,645	3,622	3,597	2,833	2,812

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Expectations about future changes in financial welfare show a large and significant correlation with likelihood of being a determined voter. The effect is significant and robust to different model specifications and control variables. This finding is consistent with the experimental results presented in Sections 4.4 and 4.5: The fear of future financial loss is

politically mobilizing. Consistent with predictions from prospect theory, voters who face the possibility of losses in the future are willing to act more -- and risk more – to avert these expected losses. Conversely, those who expect no change in their financial status – even (or, especially) those who are poor and worried – do not experience the mobilizing effect of potential losses. Instead, they are susceptible to the demobilizing effects of variables often correlated with poverty, such as scarce resources and the cognitive consequences of financial worry.

When analyzed separately, the correlation between expected financial loss and either 1) self-reported likelihood of voting or 2) probability of actually voting is suggestive but not significant. Only when analyzed together – through this panel measure of voter determination – does the measure becomes significant.

4.7 National Evidence (Nigeria)

If financial stress takes a toll on affect and political decision-making, its effects should be observable in populations outside of the US as well. Given the results described above, how does priming people to think about personal financial loss affect mobilization in a democracy in the Global South?

I use a panel survey of Nigerian young adults to test how perceptions of economic loss affect interest in political participation.[15] The survey's main purpose was to track changes in gender norms among a representative sample of Nigerian youth from 2014 to 2017 (Denny and Nwankwo 2015), and survey sample size was determined based on expected effect size

[15] Attitudes, Practices, and Social Norm Survey to evaluate Voices 4 Change, a DFID funded initiative

and intra-cluster correlation for related gender norm variables.[16] A subset of questions on affect, economic well-being, and political behavior in the 2017 survey wave enables additional study of the effect of income insecurity on mobilization. Therefore, only the cross-sectional 2017 data from the study will be analyzed here.

The survey originally contacted a representative sample of Nigerian youth ages 16 to 25 in four states (Enugu, Kaduna, Kano, and Lagos). Lagos and Enugu are located in the predominantly Christian south of the country, while Kaduna and Kano are in the Muslim-majority north. By 2017, the sample had aged to represent young adults ages 19-28. Recontact rate between 2014 and 2017 was 80%; bias due to survey attrition should not affect experimental results because treatment was randomized across respondents.

We randomly selected census enumeration areas as defined by the Nigerian census and, stratifying by state in gender, randomly selected respondents within these clusters. Data from the last Nigerian census (2006) enables us to generate survey weights and calculate population-representative results. To minimize the risks that we would undersample low income or marginalized populations, we generated household listings for each enumeration area and randomly selected from these lists rather than using a Kish grid or random walk technique. Each survey round was conducted face-to-face where possible; respondents were encouraged to provide a cell phone number as well so that they could be found and surveyed by phone if there location of residence changed over the course of the panel.[17]

To test the effects of loss primes on political action, I randomized the order of questions across survey respondents. The loss prime was an open-ended question in which respondents were asked to describe an event that could unexpectedly cause their family to lose

[16] Total original sample size was large (4799 respondents) so that results within each state would be sufficiently powered. The high intra-cluster correlation for social norms necessitated selection of a large number of clusters within each state.

[17] If respondents had moved within the four states, they were interviewed in person at their new location; phone interviews were conducted only if the respondent had moved outside the survey states.

money.[18] In both treatment and control groups, this question was positioned after a series of questions about the respondent's economic wellbeing.

In the treatment condition, this prime was positioned directly before a question borrowed from the ANES (discussed in Section 4.6) that assessed perception of whether the respondent was doing better, worse, or the same this year compared to last year.[19] We had to use the retrospective question rather than the prospective ANES question about expectations for next year, because in piloting we were told that in a Nigerian context, almost all respondents would respond optimistically and state that they expect that next year will be better.

In the treatment condition, respondents afterwards were asked their likelihood of voting in the next national election. In the control condition, respondents were asked the same questions, but in different orders. The voting question was positioned before the money module in the control, and the ANES question about changes in personal finances came near the beginning of the money module, only preceded by questions on current earnings and consumption.

4.7.1 Results

Similar to Section 4.5, I test whether A) priming people to think of financial losses changes interest in voting, B) perception that finances are getting worse also affects interest in voting, C) the loss prime changes one's perception of worsening finances, and D) the perception of worsening welfare mediates any effect of the loss prime on mobilization. I find

[18] Question language: "Sometimes families lose money unexpectedly (from surprise costs, a failed crop, higher prices, etc). In the future, what kind of event could cause losses of income or savings for your household? Why?" In piloting, we were informed that some people struggle to think of future hypothetical situations; in these cases, enumerators were instructed to ask respondents to describe a past unexpected financial loss.

[19] Question language: "We are interested in how people are getting along financially these days. Would you say that you are BETTER off or WORSE off financially than you were a year ago?"

evidence that, like in the U.S., priming people to think of financial loss changes average interest in political action, and that perceptions of decreasing wellbeing mediate this effect.

However, the effect works in the opposite direction here, as compared to the U.S. data: in the Nigeria survey, both loss primes and the perception of decreasing financial wellbeing are demobilizing compared to the control group. This suggests that while loss language does trigger an anxious response and a reevaluation of action, the actual decision to act is influenced by a range of variables with context-dependent variables (costliness of action, likelihood of action mattering, magnitude of anticipated loss) – exploration of how these values are assigned is fodder for future research.

First, I find that priming people to think about possible future economic losses their family could face causes more pessimistic assessments of how their household economic situation has changed over the past year (Figure 4.4).

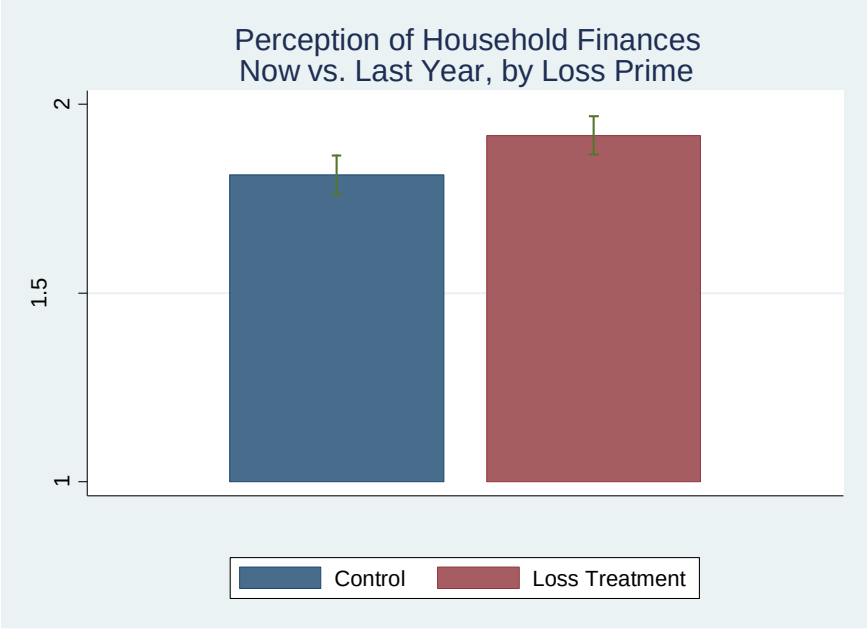

Figure 4.4: Perception of Household Finances Now versus Last Year, by Loss Prime

Table 4.4 shows that perception of how household welfare has changed has a direct correlation with people's interest in voting – moving from a "much better now" assessment to "much worse now" correlates with a 9% decrease in voting interest (0.3 points on a 5-point scale) (for marginal effects see Figure 4.10, Appendix). In the aggregate, the loss prime does not have a significant direct effect on voting interest,[20] either alone or interacted with the economic perceptions variable. Column 4 shows that the correlation between economic perceptions and voting interest holds when basic controls are added; adding a measure of household income in Column 5 drops the significance of economic perceptions to just below 90% likely due to the correlation between absolute income level and volatility.

Finally, I test whether the economic loss prime changes people's interest in voting through its effect on one's perceived change in welfare. Mediation analysis finds that this is the case – the average causal mediation effect is significant at 95%, mediating 9% of the total effect (Figure 4.11).

Overall, results show that in a Nigerian context, loss primes also lead to more pessimistic assessments of one's economic security. This heightened perception of becoming worse off over time in turn influences voting interest. While this causal pathway found in the Nigerian data is the same as results from the U.S., the perception of losses here is demobilizing rather than mobilizing.

[20] However, consistent with Chapter 3 results, respondents whose value structure resembles that of U.S. conservatives (see Graham, Haidt, and Nosek 2009) *are* influenced by loss frames. Again though, in the Nigeria case, the loss frames *decrease* interest in voting for "conservative" respondents, as compared to the mobilizing effect observed in U.S. data. Loss frames have no significant effect on "liberal" respondents in the Nigeria survey.

Table 4.4: Interest in Voting, by Loss Treatment and Perceived Personal Loss

VARIABLES	(1)	(2)	(3)	(4)	(5)
Loss Prime	-0.0534		0.0371	-0.0174	0.0250
	(0.0356)		(0.0664)	(0.0656)	(0.0686)
Worse Now vs. Last Yr.		-0.0760***	-0.0535**	-0.0504**	-0.0411
		(0.0209)	(0.0270)	(0.0242)	(0.0255)
Loss Prime X Worse Now			-0.0443	-0.0261	-0.0310
			(0.0348)	(0.0337)	(0.0353)
Female				-0.0947***	-0.0902**
				(0.0356)	(0.0385)
Age				0.00585	0.00328
				(0.00571)	(0.00617)
Enugu				0.532***	0.382***
				(0.0685)	(0.0807)
Kaduna				1.140***	1.090***
				(0.0621)	(0.0723)
Kano				1.316***	1.214***
				(0.0571)	(0.0669)
Monthly Income					2.26e-06***
					(8.54e-07)
Constant	3.212***	3.327***	3.309***	2.410***	2.468***
	(0.0355)	(0.0433)	(0.0533)	(0.153)	(0.174)
Observations	3,838	3,838	3,838	3,838	3,382
R-squared	0.001	0.006	0.007	0.193	0.182

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.8 Conclusion

Overall, the paper makes two main contributions. First, it shows people who experience – or have the perception of – income volatility are more influenced by loss-framed messages. This influence can change the probability of political participation through an elevated perception of financial threat. Furthermore, perceived financial threat itself is influenced (and can be elevated) by bias-congruent outside messages.

Secondly, the paper demonstrates that poverty measured solely by income can obscure correlates of political engagement, since economic volatility (or the perception thereof), rather than absolute income level, is especially susceptible to loss framing effects. Secondly, the

paper presents evidence of a cognitive mechanism consistent with prospect theory that mediates the effect of loss-framed messages on political action.

These findings provide a compelling reason not only to continue researching the relationship between income volatility and political participation here in the United States, but also to explore implications for mobilization in comparative contexts. Perhaps volatility is the missing variable needed to help explain the mixed – and seemingly contradictory – results of studies which explore the relationship between poverty, inequality, and high-stakes political action from peaceful protests to civil conflict.

4.9 Chapter 4 Appendix

Table 4.5: Summary Statistics of Survey Respondents

	(1) Secure, T=0		(2) Secure, T=1		(3) Variable, T=0		(4) Variable, T=1		(5) Chronic, T=0		(6) Chronic, T=1	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Female	0.40	0.49	0.43	0.50	0.51	0.50	0.47	0.50	0.55	0.50	0.56	0.50
Age	35.72	12.31	34.41	11.04	33.12	9.97	34.50	11.77	35.62	11.64	35.51	10.14
College	0.60	0.49	0.64	0.48	0.51	0.50	0.45	0.50	0.42	0.50	0.48	0.50
White	0.79	0.41	0.76	0.43	0.79	0.41	0.73	0.45	0.82	0.39	0.77	0.42
Knows Rep	0.47	0.50	0.47	0.50	0.37	0.48	0.40	0.49	0.39	0.49	0.43	0.50
Income	42340.17	22393.97	47525.06	23981.43	34641.75	19111.06	35176.22	17698.08	27383.02	17668.35	29053.26	20357.29
Anger Change	4.20	45.31	14.57	48.89	-0.48	35.61	24.22	48.40	1.57	41.44	19.09	64.93
Ideology	4.91	2.59	4.72	2.62	4.64	2.73	4.62	2.70	4.75	2.89	4.57	2.57
Observations	174		188		163		133		165		187	

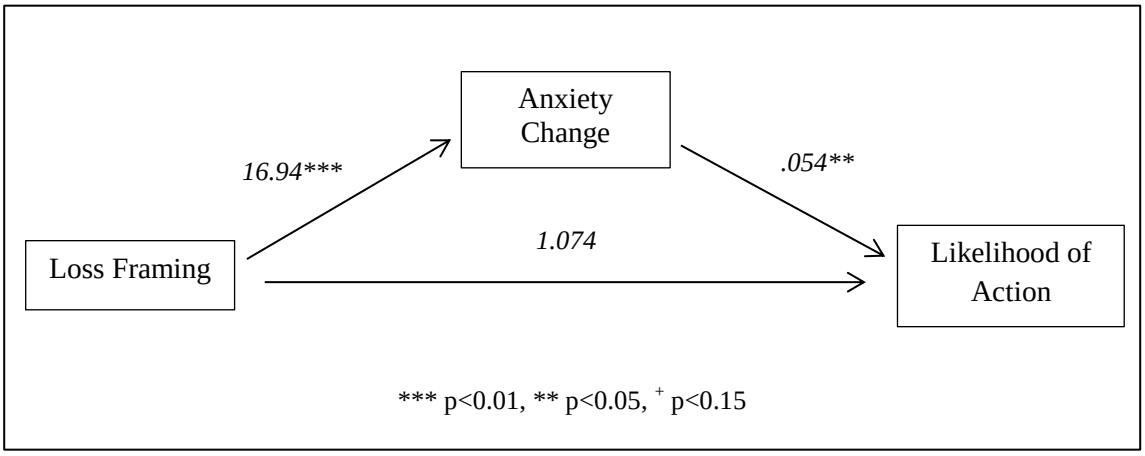

Figure 4.5: Anxiety Mediates Loss Frame Mobilizing Effect (High Probability Loss)

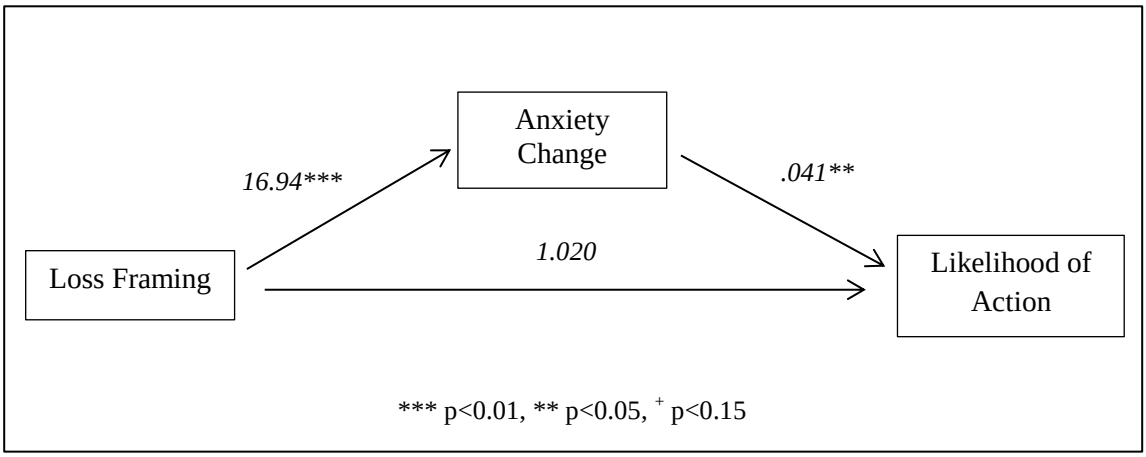

Figure 4.6: Anxiety Mediates Loss Frame Mobilizing Effect (Low Probability Loss)

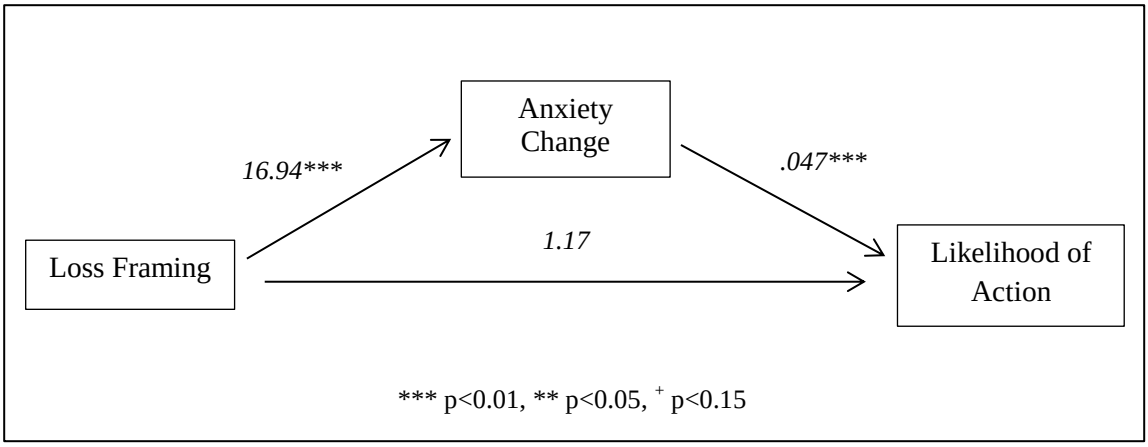

Figure 4.7: Anxiety Mediates Loss Frame Mobilizing Effect (High Probability Gain)

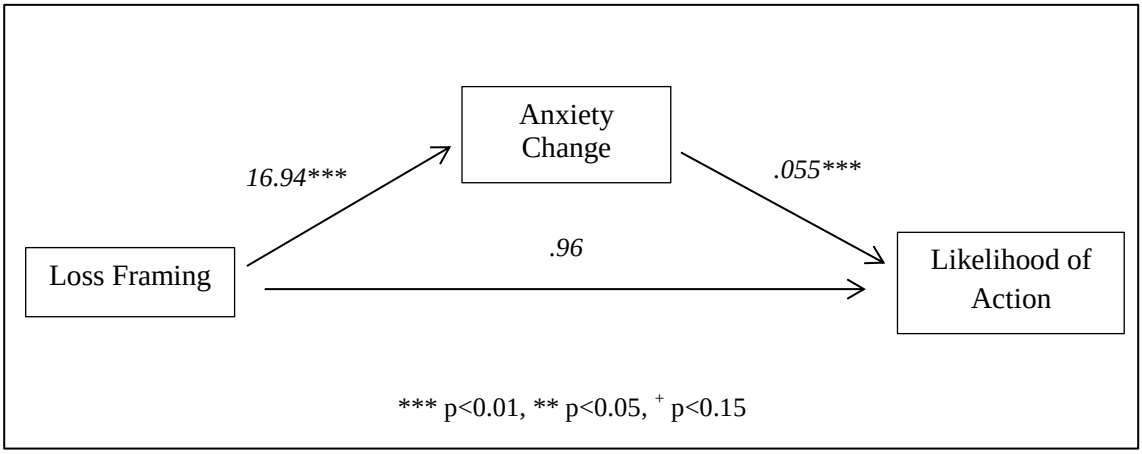

Figure 4.8: Anxiety Mediates Loss Frame Mobilizing Effect (Low Probability Gain)

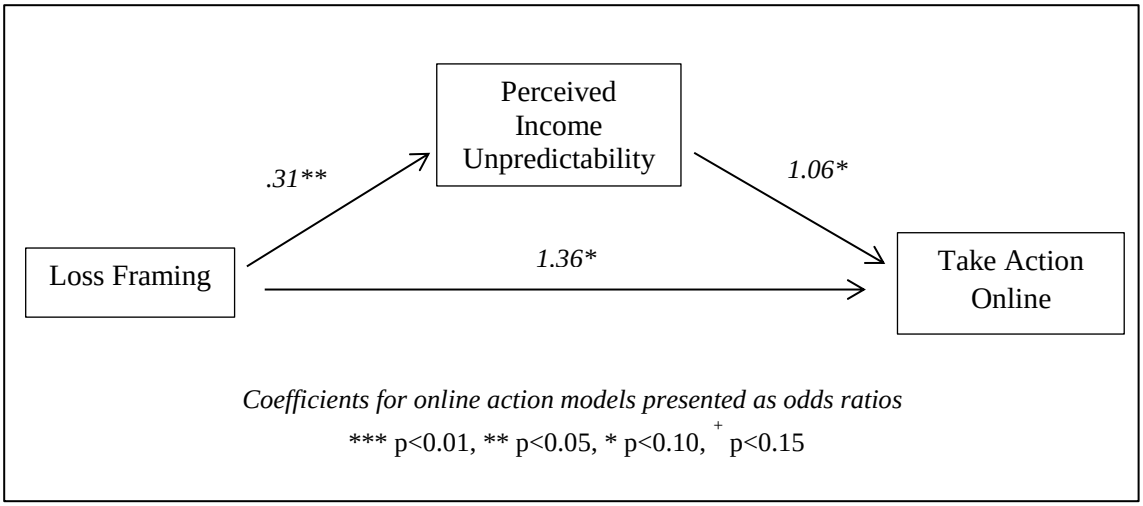

Figure 4.9: Loss Prime Affects Online Action through Perception of Income Unpredictability

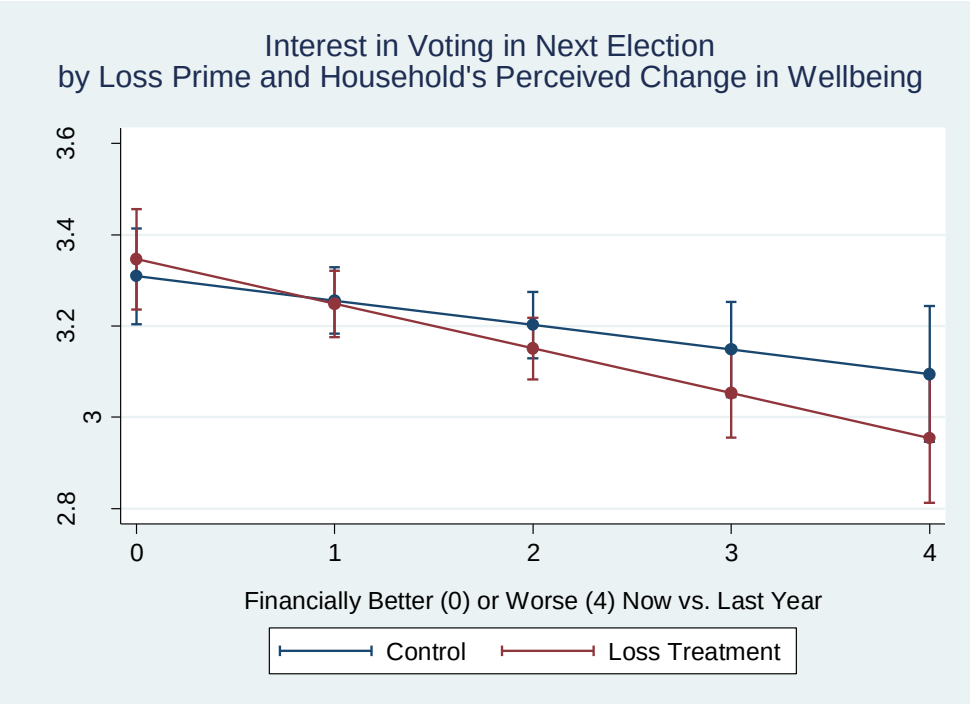

Figure 4.10: Interest in Voting in Next Election,

by Loss Prime and Household's Perceived Change in Wellbeing

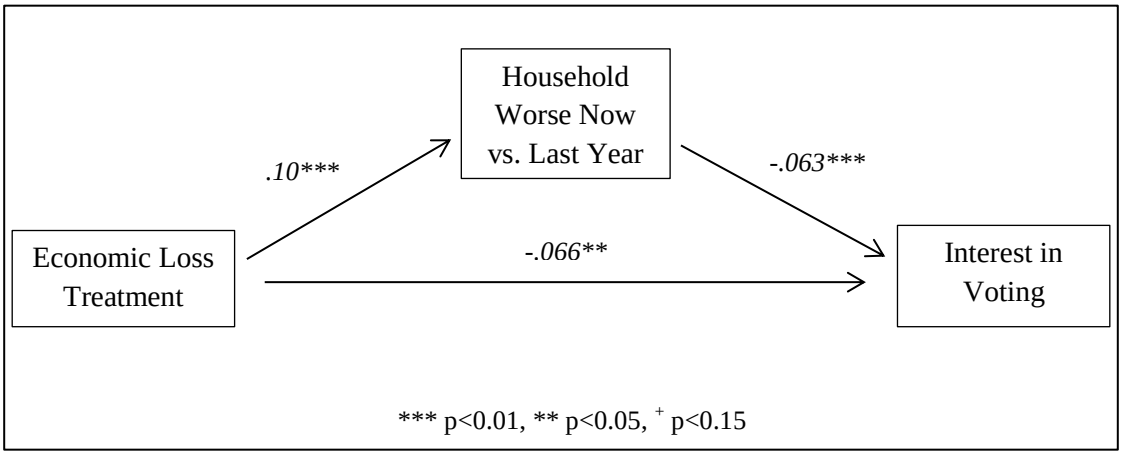

Figure 4.11: Loss Prime Affects Voting Interest through Perception of Worsening Economic Wellbeing

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