Public Opinion on the Environment and Policy in Latin America

By

Claire Q. Evans

Dissertation

Submitted to the Faculty of the

Graduate School of Vanderbilt University

in partial fulfillment of the requirements

for the degree of

DOCTOR IN PHILOSOPHY

in

Political Science

June 30, 2020

Nashville, Tennessee

Approved By:

Elizabeth J. Zechmeister

Noam Lupu

Joshua D. Clinton

Erica Simmons

Acknowledgement

I consider myself so very fortunate to have had two incredible mentors in my post-secondary education, mentors that I consciously try to emulate in my everyday life. Without guidance and mentorship from James Garand as undergraduate student at LSU, I would never have even considered pursuing a doctorate. It is with his support and encouragement that I found myself at Vanderbilt. From an introductory Honors seminar in 2011 to a doctorate in 2020, so much of my academic journey is due to his generosity and kindness. I am forever grateful to him for taking me under his wing all those years ago and allowing me to see what it means to teach, mentor, research, and live with love for those around him. So, it is no surprise that Jim pointed me in the direction of Liz Zechmeister when I got to Vanderbilt. Without Liz's unwavering support and belief in me, I am not sure I would have finished this degree. She has encouraged growth and improvement in such kind ways that truly inspire me and other students to do just that. Life after graduate school is considerably less scary because I think I've consumed just enough of her wisdom to move smoothly in the next phases of my professional life. There is no way to adequately express my gratitude for her except to acknowledge that I will always ask myself – what would Liz do? Thank you both, Jim and Liz, for being who you are and helping me to be who I am today.

These six years would have been considerably less enjoyable had I not been surrounded by supportive colleagues and friends. Josh Clinton and Noam Lupu have been great advocates and committee members. Jon Hiskey always showed us he cared for the graduate students. Amanda Clayton was a joy to work for and a great example of being a kind supervisor. The LAPOP staff and crew helped me to grow as researcher, and I am particularly grateful to have been a part of such a high-quality team. Georgia Anderson-Nilsson, Allison Archer, Mollie Cohen, Dave Conner, Matt and Patti DiLorenzo, Meg Frost, Spencer Hall, Scott Limbocker, Meri Long, Emily Noh, Mariana Rodriguez, Bryan Rooney, Sheahan Virgin, Steve Utych, and Adam Wolsky have all made my graduate school experience a positive one to look back on.

My cohort is truly the best, and I am so thankful for them. Daniel Weitzel ensured that the first year of graduate school was full of as much fun as possible and Nutella sandwiches. I could not have asked for a better colleague, roommate, and true friend, and I am thankful for his continuously uplifting spirit. Kait Cassell has become like a family member, graciously bringing me and mine into her own family. We've grown and moved through this whole process together, and I don't know what I would've done without having her in my corner. Facundo Salles-Kobilanski has been an emotional and professional confidante this whole time. He has continuously shown compassion, empathy, and sympathy, which I have so valued. To the little cohort that could, thank you!

I also have special thanks for Nicole Audette, Drew Engelhardt, HeeJu Jang, and Michael Shepherd. These four helped complete the graduate school experience, always supporting professional and personal growth. It was an absolute pleasure to share an office with HeeJu, and I cannot imagine the last year of graduate school without my accountability buddy. Michael's voracity for learning and understanding the world around him has been inspiring throughout my career, and I am thankful for our research walks. Nicole is the coolest person I will ever meet, and I thank her endlessly for keeping me grounded and giving perspective about what is important in the long run. Drew is the friend that everyone needs in grad school, but infinitely better than most can hope to find. Without him, Nashville weekends and happy hours would not have been as bright. Plus, he brought me Meg Schwenzfeier.

Nicole Hinton and Maggie Deichert have truly been the best friends someone going through graduate school could ask for. I am so grateful to have these two women in my life. We've supported each other in some of the most transitional and uncertain years, and I truly cannot imagine this phase or the next many phases of life without them. Maggie has taught me what it is to be fiercely loyal to my friends and myself, all while still pushing for learning and growth. Nicole has brought life back into work-life balance, and I continue to learn from her guidance and kindness every day. Thank you.

My family also deserves a lot of credit for this degree, as they have been a part of it every step of the way. My brother Blake helped me find my first apartment in Nashville. He has visited more days than any other person, and his phone calls rejuvenate my soul every time. He is the best person to have on your spirit squad. Getting snail mail and long emails from my dad, Don, have been some of the most welcomed distractions I could ask for. He never ceases to ask about my mental and physical health, and I so appreciate his interest in my well-being as a person the last several years. Finally, my mom is the real MVP. She was on the phone after every graduate school decision came in and researching my potential new home cities. She celebrated with me when I landed on Vanderbilt. She moved me up to Nashville in the middle of August, and her support has never stopped. Every bit of news, whether it be a positive feedback on a chapter or a bad presentation, she has listened patiently and offered the exact support that I needed. She has always put me and my brother first, and knowing you have that kind of support is just incomparable.

The real gem of the last six years though has been going through it with Bryce. He has taught me what it means to be thoughtful and intentional. He has shown me compassion and patience in times where I was being neither compassionate nor patient. Without him, I would have worked too much and missed out on living so much of my life. Instead, together we have explored so many places and had so many memorable experiences all over the world. It has not always been easy to navigate this degree simultaneously, but I cannot imagine doing it any other way. Finishing graduate school together and the construction of our community unit at Hillside Manor will always be in the top five of life moments.

Table of Contents

List of Tables

List of Figures

Chapter 1

Introduction

Environmental issues have become leading actors in the stage that is international and domestic public policy discourse. From plastic waste filling the oceans and landfills running out of room to sea level rise and changing climates, there are more than enough issues to keep policymakers at all levels busy for much of the 21ˢᵗ century. Given the collective threat that many of these issue pose, efforts to address them will likely require a response that incorporates the interests of many actors. Often described as polycentric responses (V. Ostrom et al. 1961; E. Ostrom 2010), these efforts require feedback and participation from public and private entities across different levels, ranging from individual to international.

Individuals represent a strong force in the development and execution of these polycentric solutions. Ordinary people influence the effectiveness of policy solutions and the viability of potential responses. Public opinion also shapes the set of actions that that elites can take during the policymaking process (Brooks and Manza 2008; Murillo 2009; Page and Shapiro 1983; Burstein 1998, 2003). Understanding the nature of, scope of, and underlying factors that determine public opinion then is a crucial step in moving forward with policy and solutions aimed at addressing environmental issues.

Many scholars have helped to create a strong foundation of public opinion research on the environment. From their efforts, we know that often economic security at national and individual levels leads people to more environmental consciousness (e.g. Inglehart 1981; Franzen and Meyer 2010). Similarly, the increased information from higher levels of educational attainment consistently leads people towards thinking about the environment (Lee et al. 2015). These issues also frequently are tied to political cues (Switzer and Vedlitz 2016; McCright and Dunlap 2011), with people consuming information through partisan lenses. Worldviews have similar effects. People with egalitarian views are more likely to concern themselves with environmental issues than those with individualistic views (Kvaløy et al. 2012; Leiserowitz 2005; Carlisle and Smith 2005). Finally, people are often more concerned with such issues when they are relevant for them or it is beneficial for them to do so (Egan and Mullin 2012; Shao, et al. 2014; Borick and Rabe 2010).

Despite these important inferences drawn from extant work, there is still opportunity to move this research forward. I identify three such opportunities: expanding research to include less developed economic and political contexts, considering the potential differences in conceptualization of the environment, and evaluating the set of policymaking actors that can respond to environmental issue. Many of the previous studies mentioned have a narrow contextual focus on more economically and politically developed countries. Is it reasonable to expect that political and economic cues exist and operate in the same way in

less developed contexts? If the ideological labels are le (Zaller 1992; Zechmeister and Corral 2013), then their effectiveness at explaining environmental attitudes diminishes. So, while it is the case that in some places these political cues are key predictors of attitudes in some contexts, it is not necessarily the case in others. As we work to understand a broader swath of the world's opinion on these issues, cross-context differences in explanations ought to be considered.

Related to the cross-regional application of explanations, there is also an underlying assumption in existing work that people conceptualize the environment in the same way. Yet, there are many substantive issues that make up the environment, ranging from small scale trash problems to international carbon emissions (Van Liere and Dunlap 1981). Public opinion research does not often engage with the possibility of different conceptualizations of these issues despite the potential consequences for the conclusions we make about what explains environmental attitudes. If it is the case that people systematically are thinking about the environment in different ways and what it means to be concerned or willing to protect it, then efforts to explain attitudes will likely be under specified. Explaining environmental attitudes without paying attention to what "the environment" is for people undermines the broader contribution of the research as well. Perhaps people are open to some policies but not others, but by ignoring the nuance that surrounds the environment our conclusions may result in a poor translation into policymaking.

In terms of policymaking and crafting solutions for environmental problems, there often exists another underlying assumption that policymaking is only for government entities. There are, however, many opportunities for non-state or private solutions to emerge (Vandenbergh and Gilligan 2017; Eakin and Lemos 2006). Much of the research on policymaking and the role of the state has focused on ideological explanations, and whether the state ought to have responsibility for taking on a new policy. But, in many cases, the state may not be able to create and implement policy effectively (Soifer 2012; Svallfors 2013). How do people see the role of the state in implementing policy in those cases?

In this dissertation, I take advantage of these three opportunities to contribute to scholarship on public opinion towards the environment and related policy. I aim to broaden our understanding of these issues by expanding the context in which we study them to include less developed political and economic contexts. This expansion also requires a richer understanding how environmental issues reflect individuals' experiences. By diving into the different environmental issues people are concerned with, I am able to offer insight into how these different conceptualizations translate into public opinion surveys. Then finally, I address the reality that exists for many less developed contexts, which is that the state often cannot play the role it maybe ought to in creating those polycentric solutions mentioned above. Instead, the quality of government and state capacity can be weak, encouraging people to look for other viable policy solutions.

In the three papers that comprise the dissertation, I offer new insight into some of the many facets that constitute environmental public opinion.

To make these contributions, I focus on the Latin American and Caribbean region. Generally, both cross-national and single country studies of public opinion and the environment are not focused on explaining attitudes in this region or others like it. This results in a set of potential explanations that reflects the realities of the economically developed countries that are the focus of those studies. As I detail in more depth in the dissertation, the characteristics that make some explanations relevant ones, like political orientations and economic security, are not present in all contexts. By looking at other contexts, I can offer new perspectives on theories of why some people care more about environmental issues than others. The role of the state in this region also makes it an interesting place to better understanding policy preferences. The region has historically seen states where political, economic, and cultural development funnels through the state, making it a key actor. The region also, however, has considerable variation in the quality and capacity of the state. The variation and the generally favorable attitudes towards an expanded state make it an interesting case to study how people develop preferences for the state versus non-state actors in relation to policy implementation.

The dissertation structure follows the opportunities I have identified as opportunities to grow the scholarship on environmental public opinion. In the first paper, I investigate potential determinants of generally high, but varying concern about climate change in less economically and politically developed region. I posit that public opinion on climate change ought to be at least in part due to how relevant the issue is for individuals and those around them. I extend the personal relevance literature to incorporate what we know from economic voting literature: people are more likely to take into consideration the national economy rather than their own economic situation (Kinder and Kiewiet 1979; 1981). Rather than focusing on the personal relevance of environmental issues, I instead make the case for examining how community relevance translates into how people see climate change. However, matching survey respondents from the Latin American Public Opinion Project's (LAPOP) 2016/17 AmericasBarometer to their communities' drought severity and flood incidence levels, I do not find support for the community relevance hypothesis. Surprisingly, then, there is not a definitive connection between community experiences with respect to the environment and concerns about climate change. This null result may driven by data limitations, or could be the product of an unsupported theory. I cannot adjudicate between these two possibilities; rather, I offer some potential reasons for the null results and suggestions for future work on this topic.

In the second paper, I spend time addressing one of the potential reasons for the null results in the first paper. I take a step back to consider whether different conceptualizations of the environment exist and what the implications might be. Most theories that aim to explain attitudes towards the environment, including

the community relevance hypothesis in the first paper here, have an underlying assumption that people are conceptualizing the environment in the same way. Little work has addressed the possibility that this is not the case. In the first chapter I suggest that one reason that the community relevance hypothesis is not supported is because the issues that are relevant for people are not necessarily drought and flood. Perhaps climate change is not conceptualized as increased drought severity or flood incidence (Cai et al. 2014; Cai et al. 2015; Naumann et al. 2016) for many people. In the second paper, I provide some descriptive analysis and discussion about how people think of these issues and the problems that they identify. I focus on Peru specifically, using an extended battery from the 2017 Peru AmericasBarometer survey and focus groups that were conducted in October 2019. I find that there are systematic differences in the environmental problems that people identify, and that these differences do have some effects on how people answer traditional environmental public opinion questions.

Finally, I examine how people perceive different environmental policymaking and implementation options. Bridging the quality of government and state capacity literature with the role of state scholarship, I posit that preferences for the state versus non-state actors are the product of the state itself. Given that non-state policy solutions are viable for implementing environmental policy (Vandenbergh and Gilligan 2017), I explore what encourages someone to depart from the state to look for those other options. I find that both the capacity of the state to provide resources for policy and the quality of government to effectively administer the policy both are positively related to whether an individual would prefer the state versus a non-state actor. As perceptions of the state's capacity and quality increase, people prefer the state take responsibility for environmental policy. For those who do not find the state is strong or effective, preferences for non-state solutions increase.

The three papers of this dissertation offer a new perspective on and analysis of public opinion and the environment in Latin America and the Caribbean. According to the World Bank, the region's population in 2018 was more than 640 million people, and 25% of the world's forests and 30% of world water resources are located in the region (Studer 2019). The region is also home to the majority of the world's lithium and large deposits of minerals and metals (Dannemann 2019). Understanding how people think about environmental protections and related issues in this region will be crucial in efforts to combat issues like climate change or address degradation. The public is a key player in polycentric solutions to collective goods dilemmas, and this includes the public from countries outside the most developed world. In the following pages, I look to broaden our understanding of how people approach these issues.

Chapter 2

Explaining Climate Change Attitudes in Latin America: An Examination of Sociotropic Relevance

Why are some people more concerned about environmental issues, like climate change, while others are less so? Some of the least economically and politically developed regions of the world have publics that express the greatest level of concern over environmental issues (Stokes, et al. 2015; Pew 2017). Yet, classic explanations of pro-environmental attitudes fall short in explaining attitudes in these contexts.

Existing work has focused mostly on opinion in economically developed regions, where political systems – including party systems – are relatively stable. The factors that explain environmental attitudes and perceptions of climate change in these contexts reflect these particular contexts – political orientation and socioeconomic status are key predictors. In the United States, for example, partisanship is so strong of a cue that information about the environment and even lived experiences are seen through partisan lenses (i.e. Switzer and Vedlitz 2016). Similar trends are found across the developed world, with left-leaning individuals generally expressing higher levels of environmental consciousness and concern (i.e. Kvaloy, et al. 2012; Poortinga, et al. 2019). Political orientations are relevant and important in places where political cues on these issues are accessible and consistent (Campbell et al. 1960; Zaller 1992).

In addition to political orientations, in developed contexts socioeconomic status and economic security frequently increase the likelihood of holding a pro-environment attitude. Post-materialism, which is built on the idea that people's values change as they achieve a certain level of security, provides one way to understand this connection (Inglehart 1981). Per this theoretical framework, value changes are the result of people meeting their basic needs, the base of their pyramid, and then moving up that pyramid to fulfill more abstract needs (Maslow 1943). People come to care about the environment because they have the luxury of being able to think about and form opinions about it (Inglehart 1981). Economic security then is foundational to value change. Once that foundation is firm, the expectation is that wealthier individuals will prioritize environmental issues more than those without financial security.

These theories, however, are not theoretically grounded nor empirically supported in developing contexts. Criticisms of post-materialism at both the individual- and national-level stem from the reality that poorer individuals in poorer countries appear just as concerned by or aware of environmental issues as are their wealthier counterparts (see e.g. Aklin, et al. 2013; Evans 2015; Eisenstadt and West 2017, 2019). Further, it is difficult to make the case that people rely on their political orientations when the party systems are volatile and ideological cues have less meaning (Lupu 2014; Zechmeister and Corral 2013; Kitschelt et al. 2010; Roberts 2012; Cohen, Salles, and Zechmeister 2018).

What does explain high but varying opinion over an issue like climate change in less wealthy, less-politically organized areas of the world? Absent the political and socioeconomic conditions that encourage using related cues, I posit that public opinion on climate change ought to be significantly influenced by the extent to which the issue matters – that is, is relevant – for them and those around them. This is not to say that relevance will not factor into attitudes in developed contexts, but rather that there are reasons to anticipate that it will play a clearer role in contexts where political cues and socioeconomic status are weak predictors of opinion on the environment (Borick and Rabe 2010).

In the sections that follow, I present a theory of relevance that builds on the basic notion of personal relevance and then expands to incorporate what we know about sociotropic evaluations. This latter component stems from the evidence that shows people take into account their broader surroundings when making decisions, and attitudes towards climate change are no different. I then test the expectation that community relevance matters by using survey data from the Latin American Public Opinion Project and World Resources Institute Aqueduct 2.1 datasets. I find little empirical support for the hypothesis that community relevance shapes individuals' attitudes towards climate change. I do, however, discuss important analytical and theoretical limitations that might undermine the hypothesis's test. I then close with a discussion of the contributions this study makes to the larger understanding of public opinion towards the environment.

Important when Relevant: From the Personal to the Communal

Political and social psychology research has long posited that when an issue object directly affects a person, that issue takes on more meaning and attention. Attitudes are formed or changed, strengthened or increased in importance as the issue becomes more relevant (Boninger et al. 1995; Petty, et al. 1995). And, while there are some challenges to the idea that people can effectively incorporate their own interests into political decisions effectively (see e.g. Hainmueller and Hiscox 2010; Sears and Funk 1991), there is a significant amount of evidence showing that at least when it comes to the environment, people do fairly well at matching their interests and attitudes.

Exposure to abnormal local weather (Egan and Mullin 2012; Brooks, et al. 2014; Shao, et al. 2014; Borick and Rabe 2010), drought conditions and water scarcity (Bishop 2013; Switzer and Vedlitz 2016), for example, are important predictors of various policy preferences and beliefs in environmental issues in the United States. Further, within the Latin American and Caribbean region, there is support for the role of relevance or self-interest at the individual level. Higher levels of concern about natural disaster risk are linked to elevated levels of climate change concern (Evans and Zechmeister 2018). And, vulnerable

populations within countries are often driving forces for environmental policy and igniters of social movements related to the environment (Eisenstadt and West 2019; Simmons 2016).

This reflects the reality that the immediate environment is key in meeting basic needs for many people across the world. In response to why the post-materialism hypothesis is not supported in less developed regions, Inglehart himself makes this case (Inglehart 1995). In less developed contexts, meeting basic needs is not a given (e.g. clean air and water), and this is what drives a prioritization of environmental protections (Eisenstadt and West 2019).[1] So, individuals who prioritize environmental issues are acting out of "rationality, materialism, and egoism" (Sears and Funk 1991: 4) because there is "short to medium-term impact on the material well-being of the individuals' own personal life (or that of his or her immediate family)" (ibid: 16). There is reason to expect that relevance matters for how people think about environmental issues in contexts where material interests are still being met. Yet, there is also room for further theoretical reasoning about why this link may exist.

Specifically, the focus on the personal or self is theoretically limiting. This is particularly salient when considering that one of the most consistently supported findings in political science research is that sociotropic economic perceptions are more predictive of political behaviors or attitudes than people's evaluations of their own economic standing. This sociotropic, national-level evaluation versus individual, pocketbook voting dichotomy has received extensive attention from economic voting scholars, and the reality is that people emphasize national trends over their own circumstances (Kinder and Kiewiet 1981; Lewis-Beck 1988; Anderson 2000). Why the emphasis on sociotropic evaluations exists remains at least in part an open question, and this debate lends itself to identifying several reasons as to why this empirical reality likely exists in other realms beyond economic voting.

In large part, sociotropic voting is considered to be the result of more and clearer information. Unemployment or inflation rates are frequently in the news, reminding individuals about the state of affairs (Kinder and Kiewiet 1979; 1981). The larger scale of information can serve two purposes. First, the sheer amount of information that is accessible makes it so that even the least sophisticated voters can use it to make political decisions (Gomez and Wilson 2006). Second, the increased amount of information about the broader state of affairs helps to cue citizens that a political problem exists (Mutz 1992). Unemployment or

---

[1] Meeting these sorts of basic needs, however, cannot explain the amount of variation that exists in attitudes. On average less than 10% of people in the Latin American region have truly poor access to potable water, and even fewer are exposed to highly dangerous levels of particulate matter in the air (Environmental Performance Index, 2016). While these levels are no doubt troubling on a normative level, the idea that meeting the most basic of needs is at the heart of a relevance or self-interest argument cannot explain the large proportion of people who continue to support environmental protections despite having these most basic needs met.

inflation affect more than an individual and being reminded of these situations facilitates thinking about the potential consequences and solutions – consequences and solutions that likely require larger policy responses (Nannestad and Paldam 1994; Ostrom 1990).

Regardless of the role that the increased information fulfills, there is compelling reason to think about extending this to other contexts – both topically and in terms of scale. Others have already looked at this logic in relation to other questions (see e.g. Fiorina 1981; Mansfield and Mutz 2009), and the notion is paralleled in discussions about environmental attitudes (Eisenstadt and West 2019; Rohrschneider 1988). In the section that follows, I offer a systematic application of sociotropic evaluations to environmental attitudes, specifically aimed at examining concern about climate change.

Sociotropic Relevance and the Environment

What factors ought to determine people's climate change attitudes in less developed contexts? I posit that community relevance is a theoretically relevant predictor: people's attitudes should be shaped by whether environmental issues negatively affect their surroundings. Taking the basis of the personal relevance argument and incorporating the motivations underlying sociotropic economic voting, I derive a community relevance hypothesis as to why some people are wary of issues like climate change. Sociotropic evaluations map well on to the idea that the environment is a collective issue, and there is more information available at an aggregate level. These traits motivate my focus on community relevance.

Environmental degradation frequently threatens collective goods. Poor air quality, water scarcity, heat waves, or agricultural production all exemplify the collective nature of environmental issues. These factors have cascading consequences, making it difficult to limit their effects to one group or exclude another. In general, it is challenging to conceptualize the natural environment in an individualistic way, which ought to prime people to think in a way that reflects that reality. Addressing the climate crisis requires coordinated effort and polycentric sets of solutions (Ostrom 2010; Eisenstadt and West 2019).[2] While personal experiences might map on to a collective issue, work on economic voting indicates that perceptions of the collective experience are strong predictors of political attitudes (see discussion above). The collective and subsequent political character of climate change emphasizes the relevance of the issue for a unit larger than the individual. It is true that consequences of climate change will not be evenly felt by all (see Agyeman,

---

[2] At its core, a polycentric solution is one that incorporates feedback and participation from public and private entities and incorporates a cross-section of levels – individual or local to national or international. Polycentricism developed out of theories aimed at overcoming collective action dilemmas, like those found in environmental issues (Ostrom, et al. 1961).

et al. 2016 for a review), but it should tend to be seen as a community level issue and evaluated as such when evaluating its seriousness.

Information also lessens the effect of or need to rely on direct personal experiences, particularly when such experiences are unevenly distributed. People are aware of more than what happens within their own household (Mansfield and Mutz 2009). And, that awareness shapes their attitudes and behaviors. If we expect people to consume information about the national economy (Mutz 1992), then it is reasonable to expect them to consume information about other factors outside their households, too. Whether or not this information is likely to include coverage of climate change and related issues is unknown here, but the likelihood of an issue getting attention increases as it become more relevant. People in Cochabamba, Bolivia, for example, were well aware of the water access crisis that was occurring there in the early 2000s even though the increase in water prices affected far fewer individuals than the protests would suggest if only personal relevance were at work (Simmons 2016). The community focus acknowledges that people are likely to exposed to information about environmental issues when they are relevant for their community.

Much of the economic voting scholarship focuses on the dichotomy between personal- and national-level evaluations. These levels of considerations ought to be thought of more along a spectrum, though (Fiorina 1981; Mutz and Mondak 1997). People exist in a variety of social and political spheres, and decisions or attitudes on issues reflect those spheres depending on the context (Mutz and Mondak 1997: 289). To that end, I contend that issues like climate change are some of those issues that ought to be considered at intermediate levels: preferences for environmental policy are shaped by how an individual's community is affected by negative externalities. Given that environmental issues are collective in nature and it should be easier to consume information at higher levels, I expect to find that community relevance explains climate change attitudes more than their specific, individual experience.

Which Community Is the Relevant Community?

There are several ways to conceptualize the relevant community here, and indeed people often feel attached to different communities in context dependent ways (Kasara 2007). Therefore, what might seem like the relevant community today could change as a different identity or attachment is primed. Despite this potential for shifts, I focus on individuals' geographic communities. While it is true that environmental degradation will not be felt evenly (Agyeman, et al. 2016), it is the case that many environmental issues are geographically distributed (e.g. drought tendency, cyclone likelihood, flood probability, and earthquake zones). Further, I find that the geographic community offers the clearest link to the relevance framework

because previous research often discusses environmental vulnerability in terms of geography and location.[3] Environmental issues are relevant when they are geographically present. By focusing on the geographic community, I can more clearly test the effect of community relevance.

Given this geographic nature then, I turn to identifying the size of the geographic community that captures the reasons for focusing on this sort of sociotropically based relevance in the first place. Ideally, this distance would reflect individuals' social connections, their accessible information, and shared geographic distribution. Social network analyses have identified that people's frequently contacted network size is on average about 50 kilometers (Onnela et al. 2011; Phithakkitnukoon et al. 2012).[4] While this radius certainly could exclude important resources of information, it does reflect the network to which people are most exposed. This should in turn mirror the information that is accessible from peers, community leaders, or local information campaigns.[5]

Information also can come from news media consumption, which would also shape the size of the relevant geographic community to examine. Internet and television news outlets make estimating likely news consumption tricky, with nearly 45% and 57% of people in survey having an internet connection and television in the home, respectively (LAPOP 2016/17). It is impossible to know which news, including its location source, is being consumed via the internet and television in terms of environmental issues with the data that are available currently. FM radio, on the other hand, generally reaches a maximum range of 160 kilometers, and radio is frequently relied on across the world for news and information (UNESCO 2013). In the section that follows, I use these two points (55 and 160 kilometers) as anchors of a range to study how community relevance shapes preferences for environmental policy.

A Geospatial Examination of Survey Data

---

[3] I am not discounting the possibility that other sorts of communities see degradation or threat as salient for their group, but I am arguing that geographic distribution of environmental issue severity matters. In their extensive investigation of the role that vulnerability plays in shaping Ecuadorian indigenous communities' increased levels of environmental concern, Eisenstadt and West (2019) note that the variation in attitudes exists across indigenous groups is likely the product of different geographical contexts. So, while indigenous communities at large seem to prioritize environmental protections, there is still potential for variation within those communities in how immediate or direct a threat there is.

[4] This size of the frequently contacted network is conditional on population density, though. The geographic network size is denser and closer in urban areas, while more remote areas have networks that cover larger distances (Phithakkitnukoon et al. 2012; Schläpfer et al. 2014; Gao et al. 2013).

[5] In the 2016/17 wave of the LAPOP survey, more than 90% of respondents report having access to a cellular phone in their home.

I expect that people's perceptions of climate change are at least in part shaped by their surrounding environmental circumstances. As a community becomes more threatened by an issue that can be linked to climate change, people should be more concerned about its threat.

To test this hypothesis, I use survey data from the 2016/17 LAPOP survey and map the survey respondents to their environmental contexts, specifically in regard to water issues.[6] I focus on drought and flooding for two reasons. First, these issues reflect the collective nature of environmental issues. Droughts and floods have negative impacts on entire communities and frequently require those polycentric responses mentioned earlier. Second, these types of issues are more likely to be salient given their scope and subject matter. To measure these experiences, ideal spatial data would be able to capture the drought and flood severity of a community based on its general level of aridity and rainfall. Then, it would provide the severity and frequency of deviations from that average in the years leading up to the survey question implementation. The most ideal data would also provide an analysis of the economic and social impact of the drought severity and flood incidence. Unfortunately, these data are not available.

Instead, I rely on less ideal measures of experiences with flood and drought using the World Resource Institute's (WRI) Aqueduct 2.1 database's measures on flood occurrence and drought severity to measure water-related environmental contexts. The flood occurrence measure captures the number of floods that occurred in "intersecting hydrological units with estimated flood extent polygons" between 1985 and 2011 (Gassert et al. 2015: 9). And, the drought severity variable captures the "average length of drought times the dryness of the drought from 1901 to 2008" (ibid: 10). Again, the ideal measure would focus more on the recent history of the region which would reflect the likely news and information that people are consuming. Unfortunately, however, I am only able to provide a single snapshot of each areas' historical experience with drought. Figure 2.1 shows a spatial rendering of the drought and flood measures from the WRI database.

These measures offer an assessment of the overall environmental context of individuals' and communities' locations. Despite the departure from the ideal measures described above and the limitation discussed later, these measures can be leveraged to present at least a preliminary test of whether or not sociotropic evaluations of environmental context matter for climate change attitudes. For the sociotropic-based community-level measure, I create a radius around each respondent and take the average of their broader circle's environmental context.[7] As discussed above, there is a range of distances (between ~55 and ~160

---

[6] The countries in the analysis are Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Bolivia, Peru, Paraguay, Chile, Uruguay, Brazil, Venezuela, and Argentina.

[7] I do not examine the effect of personal relevance in this paper because I do not feel confident that I can offer a meaningful test of its effect. The spatial data do not offer enough granularity to distinguish between individual-level experiences and broader community experiences.

kilometers) that allows for capturing a shared geographic distribution and social network. The top end of range is a distance that could be covered by car in about two hours and could be covered by another mode of transport in a day. An illustration of the 85-kilometer circle distance around a cluster of survey respondents is show in Figure 2.2.

Figure 2.1. World Resource Institute Aqueduct Spatial Distribution, Drought and Flood Measures
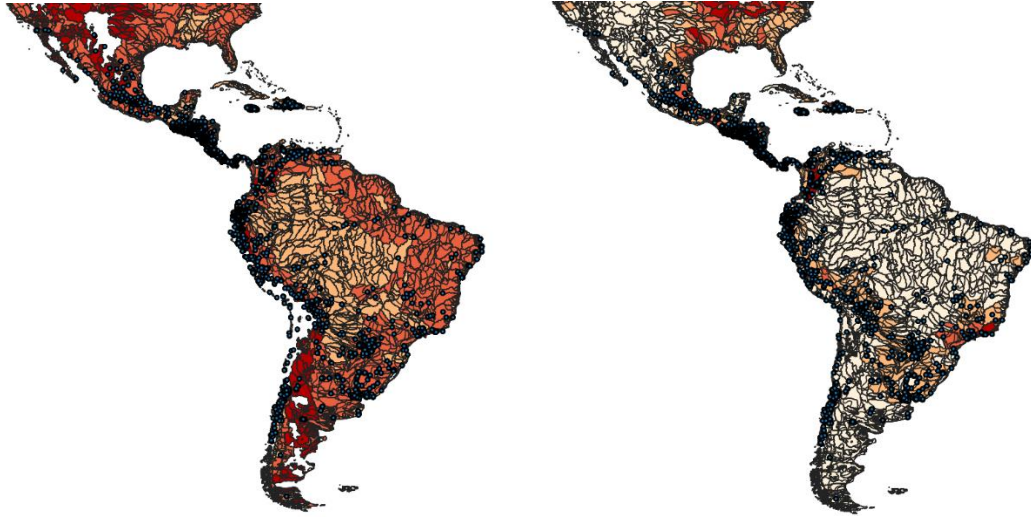
Note: In Figure 2.1, the left panel shows the distribution of drought severity according to the World Resource Institute's Aqueduct 2.1 database, while the right panel shows the flood occurrence measure. The blue dots represent LAPOP respondents' locations in the 2016/17 wave. In both maps, the darker red colors indicate more extreme or severe values of the measure.

Figure 2.2. Illustration of 2016/17 LAPOP Respondents and Community Circles
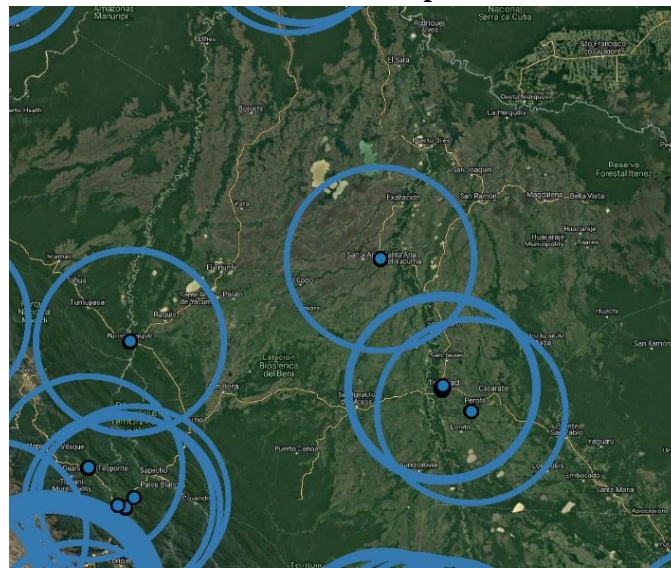
Note: Each dot a respondent's hypothetical location – for confidentiality reasons I have kept these locations blurred. Each circle around the dot represents the 85-kilometer radius around a respondent. This was done using QGIS 3.8.1.

Distributions of the four measures, drought and flood incidence at the various levels of community, are shown in Figure 2.3. The WRI values have been rescaled to run from zero to one, so that in subsequent analysis I am discussing the effects of community relevance in terms of a minimum to maximum shift.

Finally, I capture attitudes towards climate change with a survey question that asks respondents to consider how serious a problem climate change will be their country if nothing is done. [8] I focus on climate change rather than other questions about environmental attitudes because I find it provides the clearest mapping from relevance to attitude. The ambiguity of a question about a trade-off between the economy and environment allows for too vast of an interpretation to assume that people are using these water-related measures effectively. Climate change, on the other hand, is responsible for increased flooding and for phenomena like El Niño and La Niña becoming more frequent as well as increasing drought severity and frequency (Cai et al. 2014; Cai et al. 2015; Naumann et al. 2016).

Figure 2.3. Distribution of Drought and Flood Incidence Measures, WRI matched
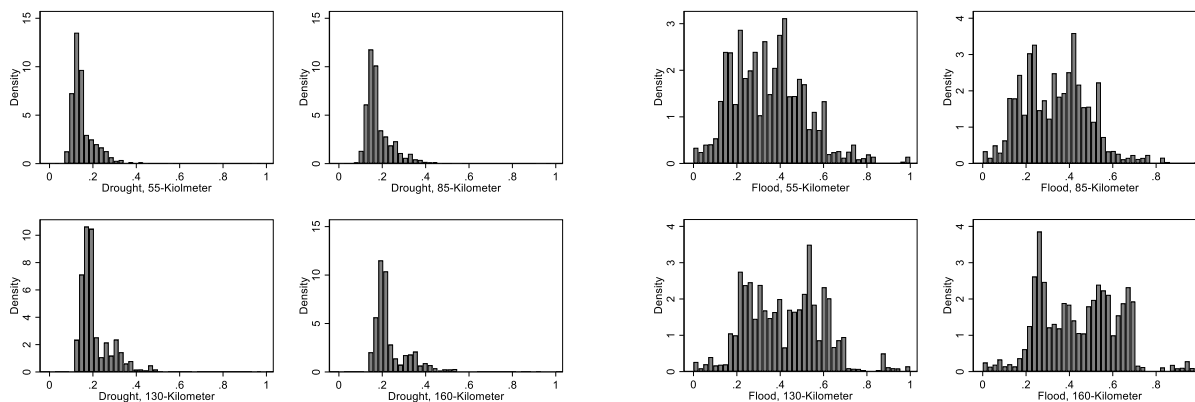
Note: Figure 2.3 presents the distributions of drought severity and flood incidence in at a variety of points within the 55-kilometer to 160-kilometer range that I have identified as being the relevant range of community relevance.

Across the Latin American region, there is a considerably high level of concern for climate change. Figure 2.4 shows the percentage of people in each country who find climate change to be a very serious threat (relative to those who find it not at all serious, a little serious, or somewhat serious). On average across the region, more than three-fourths of respondents report that they find climate change to be a very serious

---

[8] ENV2 from 2016/17 LAPOP survey: "If nothing is done to reduce climate change in the future, how serious of a problem do you think it will be for [country]?"
For the analyses, I recode the dependent variable to reflect Figure 2.2, where 1 indicates a response that climate change poses a very serious threat, and 0 indicates a response that climate change poses a somewhat a serious, not very serious, or not at all serious threat.

problem. Given the skew towards see climate change as very serious, I use this same dichotomization of the climate change seriousness question as the dependent variable. Leaving the variable on the continuous 4-point scale and analyzing it as such would assume that the gap between each point on the scale was communicating the same shift in concern about climate change. Here, however, it appears that the meaningful distinction exists between those who find climate change very serious and those who do not.

Figure 2.4. Distribution of Perceptions of Climate Change Seriousness, by country
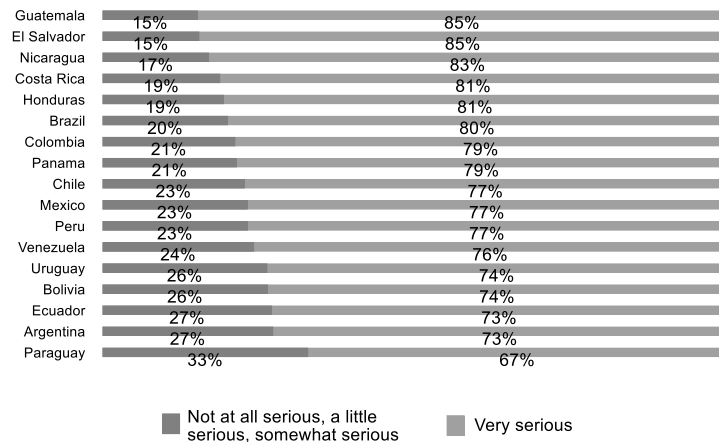
Note: Figure 2.4 shows the distributions of responses to a question about climate change seriousness in the 2016/17 round of the LAPOP survey. Question ENV2 asks "If nothing is done to reduce climate change in the future, how serious of a problem do you think it will be for [country]?"

Analysis and Results

I use a logistic regression model with country-fixed effects to examine the relationship between the relevance of environmental degradation and preferences for climate change.[9] The key independent variables are measures of drought severity and flood incidence. Since the larger scholarly discussion of environmental preferences and climate change places emphasis on political orientations and socioeconomic status, I start by assessing these two sets of theories before introducing the sociotropic measures of community relevance. I capture the post-material and socioeconomic status of individuals with measures of wealth and education. Post-materialism is conceptualized as a value change that individuals undergo once they achieve economic

---

[9] Individuals in the LAPOP survey are nested within countries, which often leads a researcher to employ a multilevel or hierarchical model. Using this type of model would allow me to account for the intra- and inter-country variation that exists in climate change attitudes. In a null model, however, where climate change perceptions are modelled purely as having intraclass correlation (ICC), approximately 2% of the variation in climate change attitudes exists at the country-level. The low variation in the intra-class correlation indicates that there is not much country-level variation in climate change attitudes, and so I focus my discussion of results on a simpler logistic regression model that includes country-fixed effects. Results for the multilevel model can be found in the Appendix.

security (Inglehart 1981), so, like others, I use socioeconomic indicators that that should reflect the ability for someone to undergo a shift towards post-materialism values (e.g. Aklin et al. 2013; Eisenstadt and West 2017). Education is three-category variable that compares the effect of secondary and post-secondary education to primary education or less, the baseline category in Figure 2.3. Given the difficulties associated with cross-national and survey measures of income, I use household goods as a measure of wealth (Córdova 2008). Houses with more household possessions, relative to others in their country and urban or rural counterparts, are considered to be wealthier. Details about all of these covariates, including question wording can be found in the Appendix.

Figure 2.5. Changes in Predicted Probability - Existing Explanations and Covariates
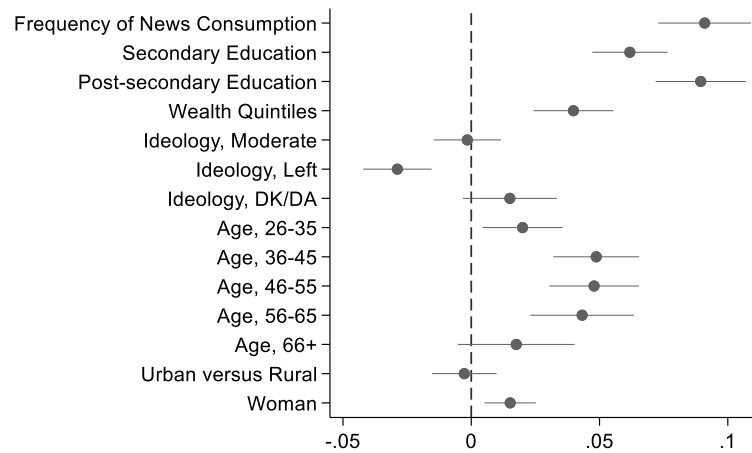
Note: In Figure 2.5, the dots represent the change in predicted probability of reporting climate change as a very serious problem. Besides wealth, every variable is categorical that is in relation to a reference group. The estimates for secondary and post-secondary education, for example, is in relation to the reference group of primary or less education. The wealth variable has been rescaled to run from 0 to1, so the estimate reflects a minimum to maximum shift in individuals' wealth. Country fixed effects are also included but omitted from the figure. Positive coefficients indicate a positive marginal effect on the likelihood of see climate change as a very serious problem. Confidence intervals are 95% confidence intervals. See Table A2.1 for full results for both logistic regression and multilevel model specifications.

As shown in Figure 2.5, the socioeconomic status variables act as predictors of climate change opinion in the region, while the political orientations hypothesis is less supported. As education increases, the probability that someone cites climate change as a very serious problem increases by 8.9 percentage points for the most educated and 6.2 percentage for those with some secondary education, compared to those with no or primary education. Moving from the least to most wealthy has a similar positive effect, increasing the

15

probability of feeling very threatened by climate change by 3.9 percentage points. The results for ideological self-placement, on the other hand, do not correspond to results from research on the importance of political orientations in advanced industrialized countries. Surprisingly, people who place themselves on the left side of a political leanings scale are 2.9 percentage points less likely to be very concerned about climate change than those who place themselves on the right. Future work should consider whether the political dialogue surrounding environmental issues reflects the dialogue taking place in other parts of the world. Finally, the frequency of news consumption is associated with a significant increase in the probability of citing climate change as a very serious problem. Moving from never consuming news to consuming news daily leads to a 9.1 percentage point increase in the likelihood of expressing the most concern.

That people who are consuming more news are more likely to express the highest level of concern about climate change tracks with an underlying assumption of the community relevance hypothesis – that more information is useful for forming opinions about climate change. So, I then turn to testing the community relevance model which is built on the idea that people have ought to incorporate what is happening around them into their climate change attitudes. Figure 2.6 shows the results of separately estimated models for each of the measures of flood incidence and drought severity. Each separately estimated model includes the single measure of community relevance and the covariates found in baseline model in Figure 2.5. I exclude the covariates from Figure 2.6, but the full output of the model can be found in the Appendix.

Figure 2.6. Changes in Predicted Probability of Citing Climate Change as Very Serious for Community Relevance of Drought and Flood
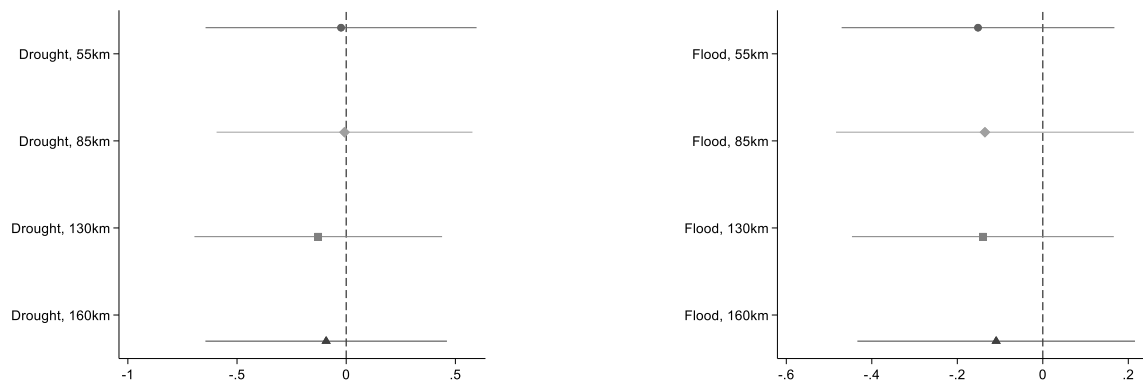
Note: In Figure 2.6, the coefficients for the community relevance measures are estimates from separate models. Each model includes controls for new consumption, wealth, education, gender, age, and urban versus rural dwelling. Additionally, people's ideological self-placement (including "Don't Know" and "No Answer" responses) are included in the model. Country-fixed effects are also included. Positive coefficients indicate a positive marginal effect on the likelihood of see climate change as a very serious problem. The confidence intervals in are shown at the 95% level. See Tables A2.2 and A2.3 for full results.

Not a single measure of relevance is predictive of someone citing climate change as a very serious problem. People do not appear to find climate change to be very serious given the relevance of the issue to their communities. A key reason why I suggest that sociotropic measures of community relevance should be considered, however, is derived from the idea that information is better and more accessible. It may be the case, then, community relevance does matter, but only for those who are engaging in news consumption – a mechanism as to why sociotropic evaluations should matter. So, I examine how the effect of experience with flood and drought changes across different levels of news consumption. I am interested in whether or not the people who report greater information consumption are more likely to internalize their community's experience with flood and drought into an increased probability of reporting climate change as a very serious problem. If so, it would support the general notion that information about one's surroundings is a key factor of seeing climate change as very serious. For the sake of brevity, I focus on the 85-kilometer measure of community drought and flood experience. Figure 2.7 shows the results of this interaction between community relevance and news consumption. The interactions between other levels of community relevance can be found in the Appendix (Tables A2.4 and A2.5).

Figure 2.7. Marginal Effects of Community Relevance on the Very Seriousness of Climate Change across Levels of New Consumption
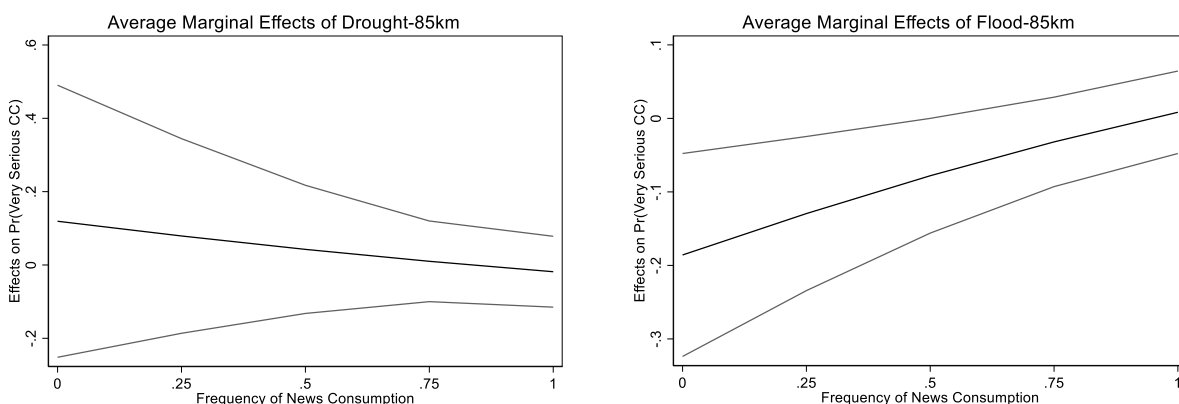
Note: Each panel of Figure 2.7 is showing the marginal effects of the community relevance measures of drought and flood across the various levels of new consumption. Moving across the figure from left to right reflects moving from no news consumption to daily news consumption. Each model includes controls for wealth, education, gender, age, and urban versus rural dwelling. Additionally, people's ideological self-placement (including "Don't Know" and "No Answer" responses) are included in the model. Country fixed effects are also included. Positive slopes indicate an increase in marginal effect of the community relevance measure, and the confidence intervals are at the 95% level. See Tables A2.4 and A2.5 for full results.

The results are mixed. As shown in the left panel of Figure 2.7, the marginal effect of drought relevance (at the 85-kilometer radius measure) does not change as the level of news consumption increases. Given that the drought experience is more historical than recent, this is not necessarily surprising. I discuss these data limitations further in the next section. Community relevance of flood incidence on the other hand does appear to increase the likelihood of saying climate change is very serious as news consumption increases. However, the positive slope exists almost entirely below zero, indicating that the effect of the community flood incidence is negative for all levels of news consumption except those who consume news daily. For those who are not accessing information regularly, the effect of increased community relevance of floods actually decreases the probability of finding climate change to be very serious. Instead, only for the most informed people does an increased community relevance increase the likelihood of being very concerned about climate change.

This provides at least weak support for the work done by Lee et al. (2015) and Aklin et al. (2013) which finds that education and information are cross-nationally important predictors of climate change and environmental attitudes, and their subsequent suggestion that policymakers and stakeholders interested in addressing environmental issues should focus on increasing information and education about related issues. These findings do, however, counter the expectations from sociotropic economic that I draw on in developing the community relevance hypothesis (Kinder and Kiewiet 1981). It does not appear all that easy for people to incorporate their community relevance into how they evaluate the seriousness of climate change.

Limitations and Potential Explanations

To continue to move the discussion about what factors shape environmental and climate change attitudes forward, I consider some theoretical and analytical reasons why the null results presented above might emerge. First and foremost, concern about climate change is high in the region. Over 75% of people in the region express that they find climate change to be a very serious threat. The null results could be in part due to the fact that there is little variation to explore. It may also be the case that the community relevance is simply not empirically supported. Beyond acknowledging these possibilities, however, I can offer some alternatives that future research could consider.

Importantly, the data being used here have some important limitations. Most importantly is that the World Resources Institute's (WRI) Aqueduct database offers rather blunt measures of experience. The flood variable is accounting for the number of floods in water catchments between 1985 and 2011, and unfortunately does not take into account events like flash floods or flood prevention infrastructure. Flash floods are often more damaging given the speed of the storm's arrival and the water flow itself. By not

accounting for this, I am missing important experiences that might reflect a community relevance hypothesis. The absence of flood infrastructure means that when things go right, people should not feel the effects of the flood as much. Yet, the measure would still show a flood given that the catchment still was flooded. This would mean that areas might appear flooded in the WRI database, but the people living in the area did not notice the flood in the same way. As noted above, ideal flood data would account for the lived and reported experiences that people are exposed to.

The drought severity index defines drought as "continuous periods in which soil moisture falls under the 20th percentile of the monthly hydrograph" (Gassert et al. 2015: 15). The more common and lengthier these periods are across a period ranging from 1901 to 2008, the higher the drought severity index is for an area. While this measure does a nice job of capturing the overall struggle that a community might have with drought across time, it also does not map onto the conceptualization of community relevance I propose here. The drought measure ending in 2008, for example, means that the type of news that would be covered in the region does not necessarily match what is being covered leading up to the 2016/17 LAPOP survey. Moreover, it does not account for the social and economic ramifications of drought, which would likely affect the degree to which the relevance of the issues matters for a community.

A large part of the sociotropic story relies on information mattering, and that it is available to people at a higher level (Kinder and Kiewiet 1981; Mutz 1992). These long-term, over-time measures of both flood and drought experience may not provide the right test of the information that people are consuming. If the news and people are talking about flash floods that halt transportation or cause damage, for example, the utility of these WRI variables. The information that people have does not match the information that the data provide. Beyond the specific measures themselves, I am also imposing these water issues on people. Instead, it may be that people care more about air quality, pollution, or deforestation. To do this, I would need to know more about which issues people are consuming and being exposed to. In the next paper of this dissertation, I pay more attention to this possibility and the implications of potential differences in how people think about the environment.

The way the LAPOP survey sample is drawn may also influence these results. Samples are designed to be representative at the national and regional levels, but not at levels lower than that. In creating these representative samples, however, geography beyond urban versus rural is not taken into consideration. Given the distribution of where respondents live relative to the drought and flood incidence is, it is possible that this analysis is simply not able to capture variation in experiences with these two measures of environmental degradation.

Finally, it may be the case that people's attitudes towards climate change have more to do with perceptions rather than lived experience. Evans and Zechmeister (2018) find that when people perceive risk of harm from a natural disaster, climate change is seen as more serious. If it is the case that perceptions are dictating climate change attitudes, then the relationship between the two – perceptions and reality – should be weak. To that end, I examine the relationship between these drought and flood measures and how people perceive their risk of experiencing harm of natural disasters.[10] In Figure 2.8, I find little to mixed evidence to suggest that the relationship between experience with drought or floods and perceptions of harm likelihood from disasters exists.

Figure 2.8. OLS Regression Coefficients for Community Relevance Measures of Flood and Drought on Perceptions of Likelihood of Disaster Related Harm
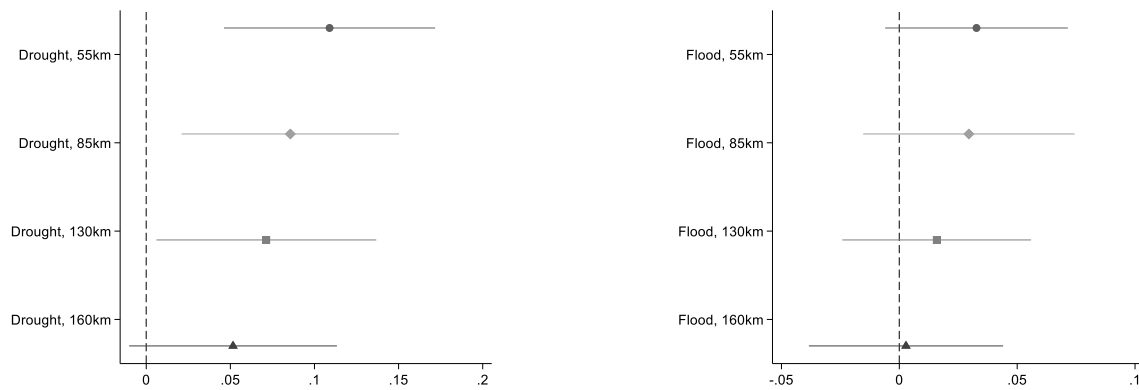
Note: In Figure 2.8, the dependent variable is perceptions of experiencing harm from natural disasters. The left panel shows separately estimated models for drought measures, while the right panel shows separately estimated models for flood measures. Each model includes controls for wealth, education, gender, age, and urban versus rural dwelling. Additionally, people's ideological self-placement (including "Don't Know" and "No Answer" responses) are included in the model. Country-fixed effects are also included. Positive coefficients are associated with more concern that individuals or their family members will experience harm or death form a natural disaster. The perceptions of natural disaster harm variable is kept on the four-point scale, so the coefficients for drought and flood are showing how the perceptions of harm change moving from the least to most severe drought and flood measures. Confidence intervals are at the 95% level. See Tables A2.6 and A2.7 for full results.

There is some evidence that community relevance shapes perceptions of risk of natural disaster harm, but the effects are inconsistent and modest at best. Moving from the minimum drought severity to the most extreme severity at the 55-kilometer radius, for example, increases responses to the perception variable by approximately 0.11 points on the perceptions of natural disaster harm's four-point scale (top estimate of

---

[10] **DRK1**. "How likely do you think it is that you or someone in your immediate family here in [country] could be killed or seriously injured in a natural disaster, such as floods, earthquakes, or hurricanes, in the next 25 years?"

left panel of Figure 2.8). This is approximately one-third of a standard deviation in the perception of disaster harm variable, and this is the largest of the effect sizes and one of two statistically significant coefficients. This offers just a preliminary and cursory look at how perceptions reflect real vulnerability, but it does suggest that lived experiences are not robustly connected to perceptions of risk. Future research then ought to consider where these perceptions come from and how they translate into climate change.

Conclusions

Existing theories of environmental public opinion largely claim that people care about the environment because their party or class lends itself to the prioritization of the environment. A third explanation, personal relevance or self-interest, has found some support when economic or political cues are weaker. In effort to continue developing out this work, I offer an extension of this theoretical reasoning - focusing on the mechanisms between relevance and these attitudes.

Drawing on economic voting literature, I argue that instead of focusing only on *personal* relevance, we should consider how sociotropically-based community relevance shapes these attitudes. By focusing on the community relevance, I recognize that issues like those that surround the environment are collective problems that are thought about in a collective (i.e. sociotropic or communal) way. Similarly, this sociotropically-derived community relevance hypothesis acknowledges that people can experience issues and internalize relevance even if the issue does not directly affect them. I argue then that community relevance should be considered in the larger discussion of what motivates environmental public opinion, particularly in less developed contexts.

Using survey data from the 2016/17 LAPOP survey of Latin America and environmental data from the World Resource Institute Aqueduct 2.1 data set, however, I do not find support for either the personal relevance or community relevance hypotheses. I discuss the limitations of the data above, but in this test of the theory, people are not incorporating the relevance of these issues for their broader surrounding. Increases in flood incidence or drought severity are not related to increased concern about climate change. I make the case for reconsidering this theory with improved data that matches the mechanisms that underly the sociotropic, community-relevance hypothesis. In the next paper, I also theorize over whether different conceptualization of issues like climate change might underly the difficulties in testing the community relevance hypothesis.

The null results, however, open further discussion about how people internalize issues like climate change. Being exposed to droughts or floods, either personally or adjacently, perhaps does not affect how people perceive climate change seriousness. For policymakers interested in moving on climate change policy then, this could be received as good news. People do not need to be personally or perhaps even remotely affected

21

to be concerned about climate change, paving the way for policymakers to act on climate in an efficient matter. It may also be the case that the operationalization and conceptualization of the community relevance here is misguided. In the next chapter, I address this possibility by diving into a discussion of how different types of people see "the environment" and subsequently form their attitudes about it.

Chapter 3

Understanding Conceptual Differences within Environmental Public Opinion: An Examination of Latin America and a Case-Study of Peru

People in Latin America and the Caribbean express comparatively high concern about environmental issues. Routinely, surveys show that large proportions of residents in the region are worried about climate change and are more willing to prioritize the environment than other regions (Stokes, et al. 2015; Pew 2017). Recent work has aimed to determine which factors lead people to prioritize these issues in the region, but a consistent, prevailing set of explanations has yet to emerge (see the discussion in Chapter 2 of this dissertation). I posit that it is important to take a step back from this effort to explain attitudes and instead focus on understanding the attitudes themselves.

What constitutes "environmental public opinion"? Answers vary widely, in both their substance and their focus. The substance, or the types of environmental issues that are studied, ranges anywhere from trash or water quality to ozone depletion and carbon offsetting. The focus - the way in which people are asked to think about these issues – can be an expression of concern about the problem, willingness to pay to address the problem, support for a related policy, or awareness of the problem; all of these exist as different conceptualizations of public opinion towards the environment (Van Liere and Dunlap 1981). The relevance of these distinct conceptual variations of "environmental public opinion" is likely to vary across population subgroups, according to the diverse life experiences that people have. Yet, many theories that aim to explain public opinion towards the environment implicitly suggest people are approaching the topic from a similar perspective – that is, that there is a common set of considerations that underlie attitudes about things like climate change or environmental protections. If this is not the case, knowing more about how conceptions differ could offer insight into why consensus explanations have not been found. Further, to the extent that conceptions are shown to vary in systematic ways, this provides new space to further theorize over why some people are more disposed than others to prioritize the environment.

What considerations do people have in mind when they are asked for their opinions about "the environment", and do these distinct conceptualizations shape how people evaluate the need to protect it? Answering these questions requires collecting and analyzing public opinion data that delves deeper than the more general questions about climate change and the environment that are addressed in other parts of this dissertation. In this chapter, I investigate variation in environmental public opinion in one country – Peru. By restricting the study to one country, I leave aside variation that might exist in public opinion across countries, and instead generate insight into how the nature of environmental public opinion varies

systematically across people in different parts of a single country. To do so, I make use of data from public opinion surveys and an original set of focus groups.

Through analyses of the richness of public opinion on the environment in Peru, I offer new insights into how conceptions of the environment and opinion vary. These insights have the potential to inform future studies of environmental public opinion and speak to some of the limitations and challenges that I fin in Chapter 2. In this chapter, I briefly review the scholarship on the environment and public opinion. I then outline some expectations about differences in how people consider these topics. Using focus group and survey data, I assess these expectations and provide more detail about what public opinion on the environment looks like in Peru. Next, I examine how differences in how people think of the environment relate to public opinion measures of concern or willingness to prioritize the environment. Finally, I conclude with a discussion of how these findings fit into the larger research on public opinion towards the environment and their implications for future research.

Drilling into Public Opinion on the Environment

How public opinion towards the environment is understood, both by scholars and the public, is varied and complex. The environment encompasses a variety of substantive topics, and the way in which people are asked about these topics varies as well (Van Liere and Dunlap 1981). Deforestation, water scarcity, climate change, air pollution, and toxic waste all constitute environmental issues and do not begin to represent a comprehensive list. Further, how people feel about these issues can manifest in variety of ways, from being willing to pay more taxes, expressing more concern about the issues, or prioritizing the environment over another topic (ibid). In order to better understand environmental public opinion, more attention should be paid to how the nature of attitudes about the environment varies.

Existing work provides a number of useful starting points for thinking about how people consider these issues. We know, for example, that there are cross-national differences in attitudes towards the environment. And, as I cite in other chapters of this dissertation, we know that the same factors that predict attitudes in one context are not necessarily salient in other contexts. For example, while ideology and political orientations predict attitudes in politically- and economically developed parts of the world, these factors hold less importance in other parts. There is also evidence to suggest that self-interest and relevance factor into environmental attitudes, but whether it is about subjective perceptions or objective reality remains an open question. These studies do not, however, engage with how survey respondents understand conceive of "the environment" and "environmental protection."

Responses to standard survey questions are influenced by, and can also mask, different conceptualizations of the topic at hand. Public opinion studies focused on support for democracy have considered this issue.

For example, Canache's (2012) study of how people understand "democracy" argues that surveys "implicitly presume that citizens elsewhere share [the same] assumptions" (p. 1135) and, further, that there is a tendency for public opinion scholars to ignore the possibility that variation in conceptions of democracy is not randomly distributed. This also parallels Simmons's (2016) discussion in relation to understanding contentious politics; there needs to be a "grounding [of] our analysis in the particulars of time and place and how we interpret the world around us" (p. 198). Studies of public opinion and the environment ought to make similar recognitions. In responding to survey questions about this general topic, people may be interpreting these questions in fundamentally different and context-dependent ways, which has implications for our understanding of what drives public opinion on these issues. For example, a common survey question asks respondents to consider what should be given more priority – protecting the environment or growing the economy. This raises important questions: what constitutes an environmental protection? And, what growth is being sacrificed?

In theory, the answers to these questions vary systematically across population sub-groups. People have different motivations for caring about the environment, and those motivations often dictate the nature of opinion formation, expression, and discussion regarding the environment. In their book *Who Speaks for Nature?*, Eisenstadt and West (2019) highlight that the discourse surrounding environmental protections in Ecuador reflects three perspectives: that of the rural communities who seek to continue their subsistence way of life, that of the government that funds social projects via resource extraction, and that of those interested in preserving nature out of moral obligation. These three perspectives are the product of different motivations – preserving ways of life, political power and public goods provision, and a more abstract, ideological motivation that aligns with existing work in more developed countries (e.g. Inglehart 1981). Each perspective incorporates a different environmental context and way of expressing environmental concern (Van Liere and Dunlap 1981). In short, how people understand general topics that fall under the umbrella of environmental public opinion is likely different to vary systematically across distinct groups.

Changing Expectations across Changing Experiences

Not only should understandings of issues like climate change and the trade-off between the environment and the economy differ across individuals, but they also should vary in systematic ways. From existing research, I identify some expectations about differential conceptualizations that pertain to urban vs. rural divides and other variation in the geographic location in which a person resides. Underlying each of these expectations is the notion that individuals' understandings of the environment and related topics ought to be shaped by their own experiences.

First, I expect to find an urban-rural divide in how people think about these issues. Those who live in rural areas have a different relationship with the natural environment, with many rural communities relying on the land for both subsistence and income (Eisenstadt and West 2019). For them, I expect to find that more consideration is given to agricultural and the physical space. Urban dwellers, on the other hand, should have a different conceptualization of environmental issues that reflects their experience and relationship with the environment. The substantive focus of environmental attitudes of those living in urban areas should focus more on issues pertaining to the city: transportation, air pollution, etc.

Second, I expect geography to matter beyond urban-rural divisions. Social and political psychology literature often point to the importance of self-interest and personal relevance in developing attitudes (Petty et al. 1995, Boninger et al. 1995). The general hypothesis that stems from this literature dictates that people should hold stronger attitudes and care more about issues that affect them. Applying this logic to the environment, people who are affected more by environmental issues should care more, prioritize the environment more, and be more worried about issues. Evidence supporting this hypothesis is mixed, and I posit that one reason this is the case is that people experience different environmental contexts.[11] The issues that are relevant for people should vary by their geography and the experiences that connect to that geography. Those who live along a coast likely experience and conceptualize the environment and related topics in a different way than those who live in a forest or desert.

Beyond these location-based hypotheses, other factors may also matter but I do not establish *a priori* expectations. The broader goal is to provide a richer understanding of how people engage with the environment and what that means for their attitudes. In the following section, I give an overview of what public opinion on the environment looks like in the Latin American and Caribbean (LAC) region, before diving into a focus on Peru. Using focus group and survey data, I identify different ways in which people think about the environment and related issues. I find that these differences are systematic, relating to sociodemographic and geographic factors. Then, I examine whether these differences in conceptualizations are related to how people answer common public opinion questions about the environment. Some evidence points to this possibility.

Public Opinion across Latin America and Caribbean

Several cross-national surveys have asked about public opinion towards the environment, including preferences over the environment-economic trade-off, willingness to pay for environmental protections,

---

[11] As discussed in other chapters, see Hainmueller and Hiscox (2010); Sears and Funk (1991); Egan and Mullin (2012); Brooks, et al. (2014); Shao, et al. (2014); Borick and Rabe (2010); Bishop (2013); Switzer and Vedlitz (2016).

and climate change concern. I briefly review what public opinion looks like across the LAC region using the AmericasBarometer data.

Survey questions about the environment have appeared on the Latin American Public Opinion Project's (LAPOP) AmericasBarometer survey since 2014. In the 2014 round, respondents were asked to consider which should be given more priority – environmental protections or economic growth. When presented with this trade-off, where only one can be prioritized, more than 40% of people in the region expressed a willingness to prioritize the environment over economic growth. An additional 30% preferred to give economic growth and environmental protections equal priority.[12]

Similarly, in the 2016/17 wave, the AmericasBarometer survey included a question that required respondents to consider which should be given more priority, but instead of offering the trade-off, it presented a 7-point scale where the ends of the scale represent giving all priority to the economic or environment, respectively. Using this survey question, the mean response hovers right at the midpoint (3.96). Nearly 40% of people fall on the environmental protection side of the scale, and 20% rest at the midpoint of 4. Finally, respondents were also asked about how serious of problem climate change would be for their country if nothing is done in the 2016/17 round. Climate change concern is high in the region, with more than three-fourths of people (78%) reporting that it would be very serious for their country. Figure 3.1 shows the distribution of responses for the trade-off question in 2014, the climate change concern in 2016/17, and the trade-off scale question from 2016/17 across countries, respectively.

Generally, attitudes towards the environment in the LAC region reflect concern and willingness to address these issues. Majorities in many countries expressing a willingness to prioritize environmental protections over economic growth, and large proportions of many countries have publics that are willing to pay more taxes or higher prices to fund those protections. So far, most individual-level explanations of which individuals are expressing these attitudes rely on socioeconomic factors, political orientations, or personal relevance (e.g. Inglehart 1981; Franzen and Meyer 2010; Kvaloy, et al. 2012; Poortinga, et al. 2019; Shao, et al. 2014; Borick and Rabe 2010; Bishop 2013). There is little support for the political explanation in the LAC context, and evidence for the socioeconomic and relevance theories is mixed. To reiterate the purpose of this chapter, I aim to shed light on whether different conceptualizations of the environment and its protections might be underlying why research cannot land on a prevailing set of factors to explain public opinion on the topic.

---

[12] This answer response was not offered to survey respondents, instead was recorded by enumerators.

Figure 3.1. Response by Country to Environment-Economy Trade-off and Climate Change Seriousness, LAPOP AmericasBarometer 2014 and 2016/17 Waves

Higher Priority for Protecting Environment or Promoting Economic Growth, 2014

Protect environment | Both | Economic growth

Seriousness of Climate Change, 2016/17

Very Serious | Somewhat Serious | Not So Serious | Not Serious at All

Mean Willingness to Priortize Environmental Protections over Economic Growth (1-7 scale) 2016/17
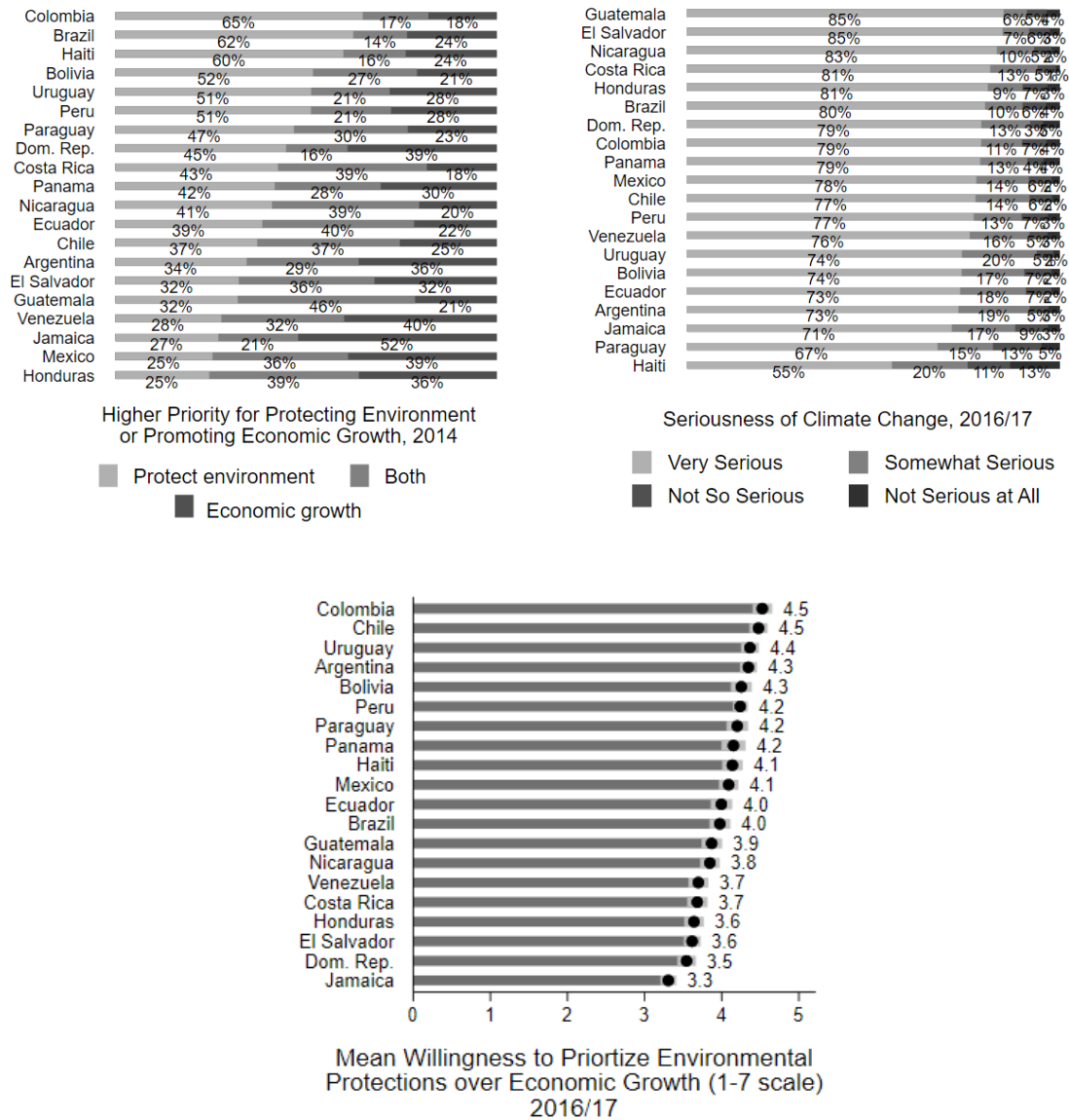
Figure 3.1. Here are the distributions of responses to three questions asked in the AmericasBarometer 2014 and 2016/17 waves across countries The trade-off question asked in 2014 was a strict trade-off question asking respondents to choose between each, with an option for the enumerator to record if they said both the economy and environment should be prioritized. The same question was asked in 2016/17, but the answer options were changed to reflect a continuous measure ranging from 1 to 7. The 2016/17 question also included a question about how concerning climate change is for one's country if nothing was done to address it. See Appendix for question wording.

Conceptualizing the Environment: Peru as a Case Study

Do people from different backgrounds have different conceptualizations of the environment? By examining a combination of focus group and survey data from Peru, I provide some evidence that suggests they do. Together, these two types of data can be used to provide an overview of how people in the country perceive environmental problems and provide a richer understanding of the differences that exist. I use the qualitative (focus group) data to set the stage and ground the statistical relationships I find later in survey data, allowing me to give more nuanced perspectives to those results. The quantitative (survey) data then help identify whether there are systematic factors related to these different perspectives.

The focus group data come from two sets of four focus groups conducted concurrently in Peru in early October 2019. Four of the focus groups were predominantly aimed at understanding how women and men understand the cost of climate change policies.[13] These groups were stratified by urban-rural and female-male, with one group per combination of characteristics. The remaining four focus groups were designed to understand how people consider the environment more broadly and took place only in an urban setting. These groups were not stratified in any way.[14] In all cases, moderators from Peru were hired to conduct the focus groups, with a male moderating the two male-only groups and a female moderating the female-only group. The urban focus groups took place in the capital, Lima, and were conducted in a classroom or co-working space. The rural focus groups took place in a community approximately 100 kilometers outside of Lima, and these groups were conducted in a cultural community center and library. All participants were recruited face-to-face with flyers and snowball recruitment. Complete information on the focus groups can be found in the Appendix.

For the survey data, I rely on the 2017 AmericasBarometer survey of Peru. The survey is comprised of responses from 2,647 respondents and is representative at the national and subregional level. Since these regional levels are central to the subsequent analysis, Figure 3.2 shows the LAPOP-produced map of the seven subnational regions that make up the Peru sample in 2017. Importantly, this round of AmericasBarometer in Peru also included an extended battery of questions about the environment. Using the focus group data, these additional questions about the environment, and the trade-off and climate change questions in Figure 3.1, I provide new insight as to how people are thinking of these issues.

---

[13] These four groups were coordinated and conducted on behalf of Professors Amanda Clayton and Sarah Bush. They have graciously allowed me to draw on the results of their focus groups as it pertains this project. I was responsible for the coordination and execution of all focus groups. This included crafting original drafts of the focus group protocols, obtaining institutional review approval, hiring local moderators, recruiting participants, and overseeing the groups themselves.

[14] I was responsible for all parts of these focus groups except for the actual moderation, for which local moderators were hired.

Figure 3.2. Regional Breakdown of Peru, as drawn by the Latin American Public Opinion Project

Figure 3.2. This map is taken from the 2017 Technical Information for the AmericasBarometer survey in Peru. The color gradation is only to illustrate distinct subnational regions that exist in the AmericasBarometer sample of Peru in 2017, not to illustrate any type of quantitative distinction in the regions.[15]

Urban and Rural Conceptualizations

As earlier noted, I expect to find that there is an urban-rural divide in how the environment is conceptualized. The focus group data suggest this is the case. The first set of focus groups on climate change was conducted in both urban and rural settings, two in each setting. Each of these groups started with a focusing exercise that asked participants to consider the first three things that came to mind when they heard "climate change." I have combined the two rural and two urban groups together to identify themes that are

---

[15] This technical report can be found at
https://www.vanderbilt.edu/lapop/Peru_AmericasBarometer_Tech_Info_2016_17_W_rev_021219.pdf.

shared and distinct in each group. Table 3.1 shows a summary of what words or phrases participants in rural and urban areas thought of when they heard "climate change."[16]

Table 3.1. Summary of Climate Change Thoughts, Urban versus Rural

Rural Thoughts	Shared Thoughts	Urban Thoughts	
burning garbage	deforestation	alternative energy	ozone layer
disease	glacier melting	animals	plastics
evolution	air pollution	consumerism	recycling
water scarcity	temperature change	Donald Trump	resource extraction/mining
	weather (rainy, dry) change	ecosystem imbalance	textile production
	lack of consciousness	government inaction	transportation pollution
	wildfires	natural disasters	water pollution

Different themes do emerge across the urban and rural groups. For both sets of participants, changing temperatures and weather, pollution, glacier reduction, wildfires, and deforestation came to mind when hearing climate change. The differences that exist across the groups though highlight different experiences. Rural participants connected climate change to burning garbage and tires, increased disease prevalence, and water scarcity. Burning garbage is common among rural communities across the world, and in many rural communities, water does not always come out of a tap on demand. These issues are relevant to living in more rural areas.

Similarly, urban participants generally focused on issues that reflect their experience. Transportation pollution, consumerism, plastic use, and the ozone layer are all salient in a major metropolitan area like Lima, where traffic and transportation are daily struggles that have implications for the ozone layer. Interestingly, urban groups also associated climate change with their perceptions of government inaction. Four participants of the total 14 participants in the urban groups brought up government's apparent disinterest or inability to address climate change. Again, this likely is the result of their experience. Lima is the capital of the country and in the 10 days the groups were conducted, the president of the country dissolved the legislative body in response to corruption problems. Protests occurred, and it was salient issue with consistent and increased news coverage in the city. This does not mean that government inaction would not be an issue that emerged in rural areas. Instead, the protests, which were visible in Lima – disrupting traffic patterns and such - were arguably more pressing and immediate for the urban focus group participants

---

[16] Coding for Table 3.1 simply is a catalog of the words and/or phrases that participants said they wrote down in response to the priming question.

at the time of the focus groups. It is not surprising then that the government emerges as theme in this context in this time frame.

The fact that Donald Trump and the fires in the Amazon are also mentioned suggests that the conceptualization of the environment is not static or constant over time. I cannot offer a thorough examination of this possibility here, but future research should consider whether the dynamic nature of the environment shapes how people conceptualize it. In another chapter of this dissertation, I test whether individuals' surroundings shape their attitudes towards climate change using their spatial location and the prevalence of droughts and floods around them. I do not find support for this hypothesis, but I posit that one potential reason for this is due to the fact that the data capture historical realities. I have a single measure of what the individual's community has looked like across time, but the topics that are mentioned in these focus group data suggest this is a potential problem for testing personal, or in my case community, relevance hypotheses.

Turning to the other set of focus groups, I find that similar urban-focused themes emerge in relation to a broader discussion about the environment. I also find that even within urban areas there is a large lens through which someone can see the environment. The second set of groups only took place in urban settings, yet they support the idea that conceptualization of the environment is varied. As a focusing exercise, participants were asked complete a short survey that included the exact same trade-off between economic growth and environmental protections question that is asked in the AmericasBarometer survey. After answering the 7-point scale version of the economy-environment trade-off question, respondents were asked to share what answer they gave and what came to mind when they answered this question. The mean response across the groups was 2.4 on the original scale which indicates that a response of 1 would be giving all priority to environmental protections.

In deciding upon their answer, participants mainly thought of quality of life indicators. Like the rural groups above, they did mention illnesses and disease, but those who brought up disease in the urban groups specifically tied it to air pollution and air quality.[17] One woman noted "there are many children who in their blood, children with blood cancer - they have found [in the children's blood] contaminants that have to do with the fumes of the cars." Another woman in the same group cites the contaminants that factories emit, and the consequences of living near them, like an increased probability of lung cancer. Others who prioritized the environment did so because they find a healthy environment to be necessary condition for economic growth. One man believed "that economic growth and the environment, taking care of the

---

[17] The rural groups tied disease and illness to the change in temperatures and weather. One woman in the urban group did make a similar connection, noting that she suffers from allergies that she believes will worsen as temperatures and seasons shift.

environment, must go hand in hand. Companies must be aware that they have to take care of the environment and form projects that help to care for or prevail the environment." Relatedly, the majority of participants who did not want to give all priority to the environment mentioned that economic growth could be achieved in a sustainable way – that the trade-off is not a necessary one.

When asked specifically about what came to mind when they thought of environmental protections, both global issues and issues associated with living in a large city emerged. As in the climate change groups, the fires in the Amazon, pollution of rivers and seas, and deforestation were mentioned by at least one person in each group. One woman noted that images she had seen in the news came to mind: "animals that one sees, sees them stranded or sickened by something, or a bird all bathed in oil." Two participants said they thought of the replanting tree efforts (used to offset deforestation and lumbering) that are happening in other countries, and two others brought up international agreements and conventions. Then, in terms of urban living, one man listed the problems with "garbage on the street, the noise issue, the traffic we have is unbearable," and three other participants noted that they thought of the pollution that comes from cars and transportation. Two other participants even brought up the problem that noise pollution presents in large cities.

From these focus groups, it is clear that there are a variety of ways to think about climate change, environmental protections, and the trade-off between the economy and the environment. The qualitative data suggest that different experiences, including urban and rural divisions, shape these conceptualizations. This distinction by no means explains all of the variation, but it does illustrate a need to theorize more over how we study and explain environmental attitudes. Interestingly, the differences that emerge above are also apparent to focus group participants. When asked whether people in other parts of Peru would answer the trade-off question in the same way, those in Lima did believe that people living in other parts of the country would have different perspectives. One respondent noted that he believed that those who live in rural communities have a different "worldview, of our ancestors the Incas, that I imagine that influences them a lot, because they respect the land." Another man said he thought people in rural areas likely would score on the economy side of the scale, preferring "economic growth obviously because they have too little pollution to focus on pollution." And, another participant agreed that "in the provinces there is less pollution than in Lima. Everything is separated, it is more natural... they'd be [on the economic range of the scale] … They take great care of their green areas in the provinces..." The accuracy of these perceptions is not necessarily important, but it does indicate that we should consider the different paths people take to answering a survey question.

<u>Local Environmental Problems Reflect Location</u>

Survey data also reveals the existence of urban-rural differences in considerations about the environment. In the 2017 LAPOP survey of Peru, a battery of questions about the environment was included on the questionnaire. Two questions asked respondents to consider what the most serious environmental problem in their locality and the nation, respectively. These perceptions affirm the qualitative data findings regarding urban-rural divisions, particularly in relation to the locality's most serious problem. Figure 3.3 shows the breakdown of response by category for perceptions of the local problem. For urban respondents, trash and air pollution are the two most cited problems, making up 70% of responses. Rural respondents see more variation in their responses. The most cited topic is still trash, but the gap between the most cited and second most cited problem is negligible. And, in rural areas, people are considerably more concerned about droughts, deforestation, and water pollution than their urban counterparts.

Figure 3.3. Most Important Environmental Problem in Locality, by Urban versus Rural dwelling
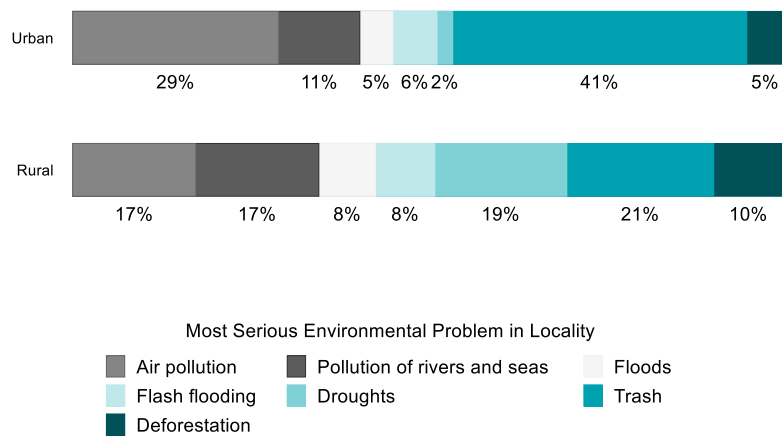
Figure 3.3. This figure shows the breakdown of responses to a question about the most important environmental problem in the survey respondent's locality.

Moreover, there are certain characteristics that correlate with people selecting one of the issues as the most important instead rather than another. I use a multinomial logistic regression to identify which characteristics are linked to the various environmental problems in one's locality. The results are presented in Figure 3.4, which shows how the predicted probability of selecting a given problem is related to a minimum to maximum change in sociodemographic and geographic variables. Supporting the descriptive analyses in Figure 3.3, urban dwellers are 13-percentage points more likely to cite trash than rural dwellers, while people in rural areas are 6-percentage points more likely to cite droughts than those in urban areas.

Otherwise, the differences between the problems that urban and rural people identify as the most serious are indistinguishable, holding other factors constant.

The data also permit an investigation of how living in different regions of the country shapes perceptions of problems. As shown in the top variables of Figure 3.4, there are important distinctions in how people see these issues across the country. Using the regional breakdown in Figure 3.2, I examine how living in each region affects the probability of citing an issue, relative to living in the capital, Lima. People in the Sierra regions are approximately 15-percentage points less likely to cite air pollution and 20-percentage points less likely to cite trash than those in Lima. Instead, those living in these areas are more likely to be concerned with drought relative to those in Lima. Those living in Peru's jungle region (Selva) are 21-percentage points more likely to cite deforestation than those in Lima and 18-percentage points more likely to cite floods as the most important problem in their areas. They are also less likely to find trash and air pollution as the most problematic issues in their locality (27- and 25-percentage points, respectively). Finally, along the coast, where Lima is also located, there are less distinctions from Lima residents about which problem is the most serious. Those in the northern coastal area are less concerned about air pollution than those in the capital, and they are more concerned about floods. Those in the southern region of the coast are less concerned about trash than those in Lima, supporting the idea that people in metropolitan areas do not see the same problems as others.

In terms of demographics, older age cohorts are less likely to find trash to be the most important problem in their area, and instead are more likely than the youngest cohort to cite drought and air pollution. Women are generally more concerned about trash and less concerned about air pollution than men. The effects of wealth are insignificant, both in terms of statistical significance and substantive effect. Education seems to discourage people from seeing air pollution and flash flooding as the most important local problem, while it is related to an increased probability of citing deforestation as the most serious problem in the locality.

These descriptive and statistical analyses support the idea that there are different ways to conceptualize environmental problems. People are exposed to different issues, and their concern reflects these differences. Education, for example, likely exposes people to different information and resources that others do not have. Living in a jungle focuses attention on related issues, like droughts and deforestation, and away from air quality issues that one finds in densely populated areas. Do these differences matter for how people then answer questions about their willingness to prioritize environmental protections or level of concern about climate change? Later, I offer some preliminary answers to this question. In the next section, I briefly examine factors related to perceptions of national environmental problems.

Figure 3.4. Explaining the Most Important Problem in Locality, Changes in Predicted Probability from Multinomial Logistic Regression Results
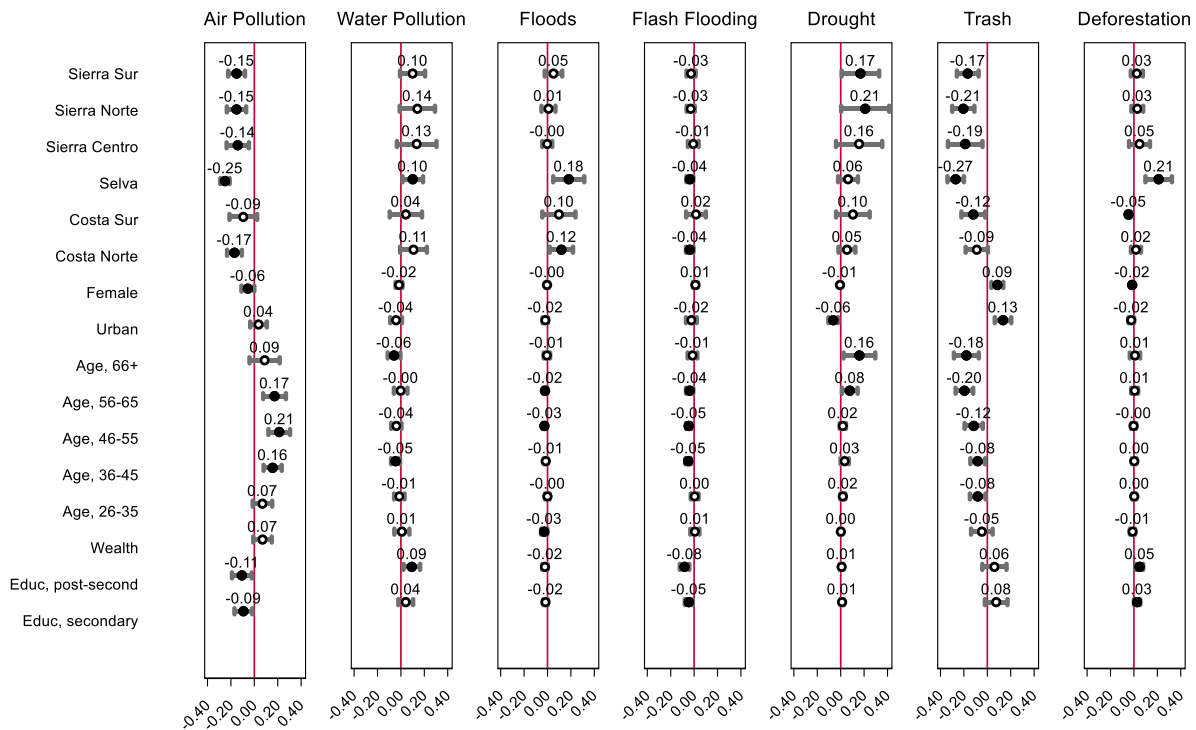
Source: © AmericasBarometer, LAPOP

Figure 3.4. These are the changes in predicted probability of selecting each local environmental problem associated with a change in each independent variable. In all cases except wealth, the independent variable is a categorical variable that indicates the effect of that variable relative to a reference category. For the regional variables, the reference category is living in Lima, for the age variables the reference is the youngest age group 18-25, and the education variables are in relation to having no or primary education. Complete results of this multinomial logistic regression can be found in the Appendix, Table A3.1. The question wording and coding for all of the variables can also be found in the Appendix. The model also accounts for survey weights.

National Environmental Problems Reflect Consensus

Interestingly, but perhaps unsurprisingly, the urban versus rural divide is not as prevalent in how people consider Peru's most serious environmental problem. While the breakdown is slightly different across the two types of areas, the majority of people in both urban and rural areas (53% and 52%, respectively) cite either air pollution or water pollution as the most serious problem for the country. And, as shown in Figure 3.5, the breakdown of responses does not vary considerably in terms of the other problems that people cite. Urban and rural dwellers seem to have similar perspectives on which environmental issues plague Peru. Figure 3.6 presents similar multinomial logistic regression results as shown in Figure 3.4 but for the

perceptions of national problems. In this multivariate analysis, the urban-rural divide is also irrelevant. Not a single national environmental problem is statistically correlated with whether someone lives in an urban or rural area.

Figure 3.5. Most Important Environmental Problem in Peru, by Urban versus Rural Dwelling

Most Serious Environmental Problem in the Country

■ Air pollution ■ Pollution of rivers and seas ■ Floods
■ Flash flooding ■ Droughts ■ Trash
■ Deforestation
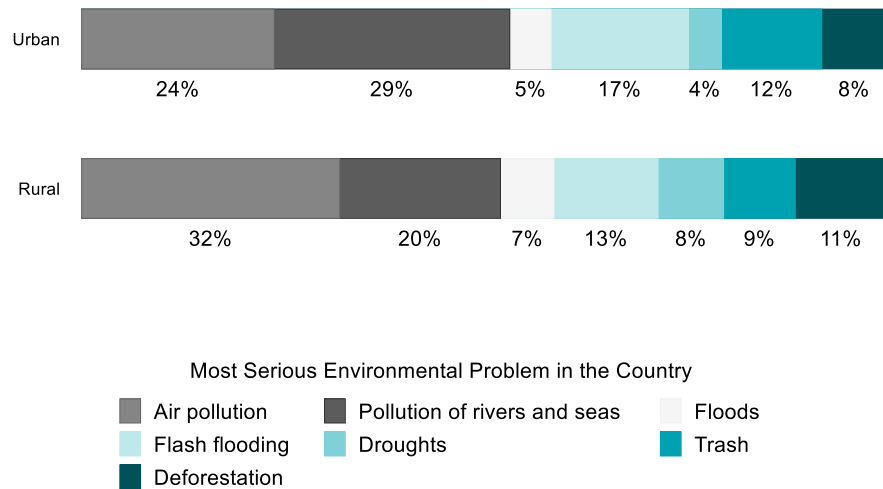
Source: © AmericasBarometer, LAPOP

Figure 3.5. This figure shows the breakdown of responses to a question about the most important environmental problem in Peru.

There are differences in how geography is related to perceptions of the nation's most important problem relative to local problem perceptions. Given that people are asked to consider the overall problem, this is not necessarily surprising. It does, however, provide some evidence that people are able to disentangle local versus broader issues. In Figure 3.4, there are significant substantive regional effects in how people see the most important problem in their locality, with several double-digit changes in predicted probability of selecting a local environmental problem. In Figure 3.6, however, there is only one double-digit change in predicted probability due to regional location: people in the jungle (Selva) are 12-percentage points more likely to cite deforestation as the most important environmental problem than those living in Lima. Moreover, there are instances of the regional effect flipping direction relative to its correlation with local problem perceptions. Those in the southern sierra, for example, are not concerned about air pollution locally, but they are statically more likely to say air pollution than those in Lima. Conversely, while they are almost statistically more likely to cite water pollution as the local problem, they are less likely to cite it as the most pressing national environmental problem. A similar coefficient direction flip takes place for

37

those in the northern coastal region, moving from not concerned about air pollution locally to concerned about it nationally.

Figure 3.6. Explaining the Most Important Problem in Peru, Changes in Predicted Probability from Multinomial Logistic Regression Results

	Air Pollution	Water Pollution	Floods	Flash Flooding	Drought	Trash	Deforestation
Sierra Sur	0.09	-0.08	0.01	-0.05	0.08	-0.04	-0.01
Sierra Norte	0.10	-0.07	-0.01	-0.06	0.09	-0.06	0.01
Sierra Centro	0.05	-0.06	-0.02	0.01	0.04	-0.06	0.04
Selva	0.03	-0.08	0.06	-0.07	0.01	-0.07	0.12
Costa Sur	0.08	-0.03	0.02	-0.02	0.03	-0.03	-0.04
Costa Norte	0.07	-0.05	0.05	-0.04	0.00	-0.03	0.00
Female	-0.02	-0.03	0.01	0.08	-0.01	0.00	-0.04
Urban	-0.04	0.04	-0.02	0.03	-0.00	0.02	-0.03
Age, 66+	0.05	-0.08	0.00	-0.01	0.06	-0.03	0.01
Age, 56-65	0.00	-0.09	0.01	0.00	0.05	0.02	0.01
Age, 46-55	0.01	0.03	-0.00	-0.05	0.04	-0.02	-0.01
Age, 36-45	-0.01	0.04	0.02	-0.07	0.01	-0.00	0.00
Age, 26-35	0.02	0.01	-0.01	-0.01	0.00	-0.04	0.02
Wealth	-0.08	0.08	-0.02	0.06	0.01	-0.05	0.02
Educ, post-second	-0.03	0.15	0.00	-0.10	-0.02	-0.07	0.05
Educ, secondary	0.00	0.11	-0.01	-0.03	-0.00	-0.08	0.01

Source: © AmericasBarometer, LAPOP

Figure 3.6. These are the changes in predicted probability of selecting each national environmental problem associated with a change in each independent variable. In all cases except wealth, the independent variable is a categorical variable that indicates the effect of that variable relative to a reference category. For the regional variables, the reference category is living in Lima, for the age variables the reference is the youngest age group 18-25, and the education variables are in relation to having no or primary education. Complete results of this multinomial logistic regression can be found in the Appendix, Table A3.2. The question wording and coding for all of the variables can also be found in the Appendix. The model also accounts for survey weights.

Similarly, sociodemographic features shift in relevance for predicting which national problem is most pressing. Age was generally predictive of what problems people saw locally, but for assessing Peru as a whole, views are similar across age cohorts. Those with higher levels of education express more concern about water pollution at the national level, while the probability of selecting air pollution is no longer different across education levels as it was at the local level.

People do think about the national and environmental issues in different ways. Only 13% of people report the same environmental problem to be the most serious at the local and national levels. These perceptions

are the product of location, education, age, and wealth. Yet, the relevance of these predictors also changes across levels of problems. The substance of environmental issues that come to mind is varied and complex. In the next section, I look to see whether these differences are correlated systematically with how people respond to public opinion questions.

Implications of Different Environmental Problems

In the previous section, I find evidence that there are conceptual distinctions about the environment and related problems. Moreover, these differences vary within a single country. Regional differences and the urban-rural divides are related to different views of environmental problems in one's locality, and these factors take on different relationships when it comes to national environmental concerns. Here I assess whether these differences in perceptions of the environment and the most important problem have implications for how people answer policy questions about the environment.

First, I return to the trade-off between economic development and environmental protections. I look at the 2017 AmericasBarometer survey of Peru to determine whether perceptions of national and local problems factor into how people answer this question. I offer a test of whether or not the different problem identification is related to an increased or decreased willingness to prioritize environmental protections over economic growth. Do different substantive environmental concerns map onto the trade-off in different ways?[18] I do not have a priori expectations about how these perceptions of local and national problems translate into their willingness to prioritize environmental protections.

Figure 3.7 presents the relationship between citing each environmental problem and individuals' willingness to prioritize the environment. This OLS regression model includes both perceptions of local and national problems, as well as all of the variables included in Figure 3.6 above. These control variables are excluded from the model, however. The dependent has been rescaled to run from 0 (total priority given to the economy) to 6 (total priority given to the environment). Air pollution is the reference category for the national problem, while trash is the local problem reference category. These are the modal responses to each question, respectively.

---

[18] Importantly, these questions about the most important problem do not offer a degree to which the problem is serious. Inglehart's (1995) "objective conditions" hypothesis specifies that as people's material well-being worsens due to environmental issues, they should be more likely to report concern or worry about such issues. I am not testing this material conditionality here.

Figure 3.7. OLS Regression of Trade-off between Economy and Environment
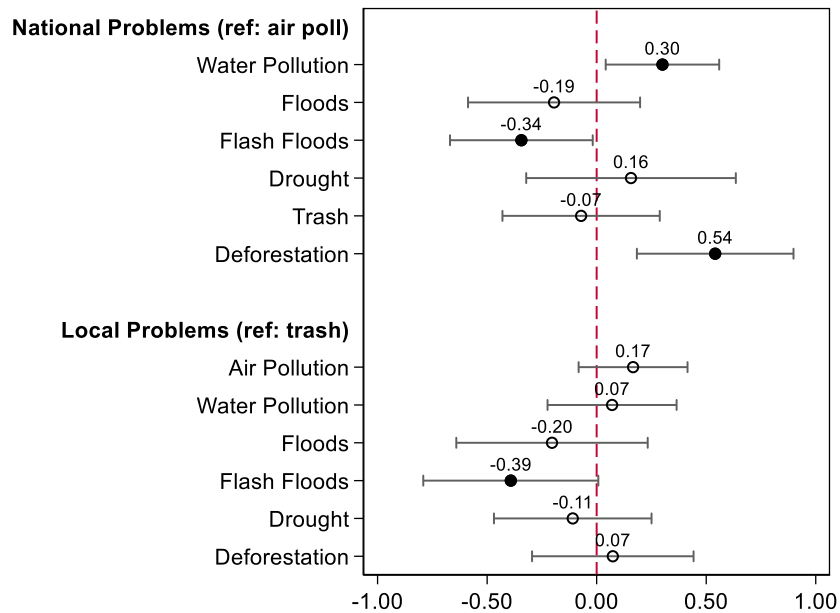
Figure 3.7. These are the OLS regression coefficients that result from regressing the trade-off question on the different perceptions of the national and local environmental problems. The covariates found in Figures 3.4 and Figure 3.6 are also included in the analysis but excluded from the figure. The trade-off question has been recoded to run from 0 (economic growth) to 6 (environmental protections). The coefficients for national problems are the change in the trade-off scale for each problem relative to citing air pollution. The coefficients for local problems indicate the change in the trade-off scale for each problem relative to citing trash. Complete results of this OLS regression can be found in the Appendix, Table A3.3. The question wording and coding for all of the variables can also be found in the Appendix. The model also accounts for survey weights.

I find that citing some problems is related to modest yet statistically significant differences in the trade-off question. In terms of national problems, citing water pollution and deforestation is related to an increased willingness to prioritize environmental protections over economic growth. Those who cite water pollution move 0.30 points up this 7-point trade-off scale towards the environment, relative to those who cite air pollution as the national problem. Seeing deforestation as the most important national environmental problem leads to a 0.54 increase towards favoring environmental protections. Being concerned with flash flooding, however, moves people in the direction of prioritizing economic growth by 0.34 points.

Local problems, on the other hand, are less related to the trade-off between the environment and the economy. Similar to perceptions at the national level, people who are concerned with flash flooding score 0.39 points less on the 7-point scale – indicating more priority should be given to economic growth over environmental protections. Otherwise, relative to trash being the most important local environmental problem, no other local problem is related to the trade-off question.

In Chapter 2 of this dissertation, I develop a theory of community relevance that outlines the expectation that people should incorporate their community's experience with environmental issues into their perceptions of climate change. An empirical test of the hypothesis, however, yields null results. The results in Figure 3.6 suggest that community relevance would and should not map onto this measure of public opinion towards environmental protections. Instead, people are responding to a general question about environmental protections or economic growth with their perceptions of national environmental problems. Given the construction of traditional public opinion questions, it is perhaps not surprising that explanations of relevance have mixed support.

Figure 3.8. Changes in Predicted Probability of Thinking Climate Change Is Very Serious
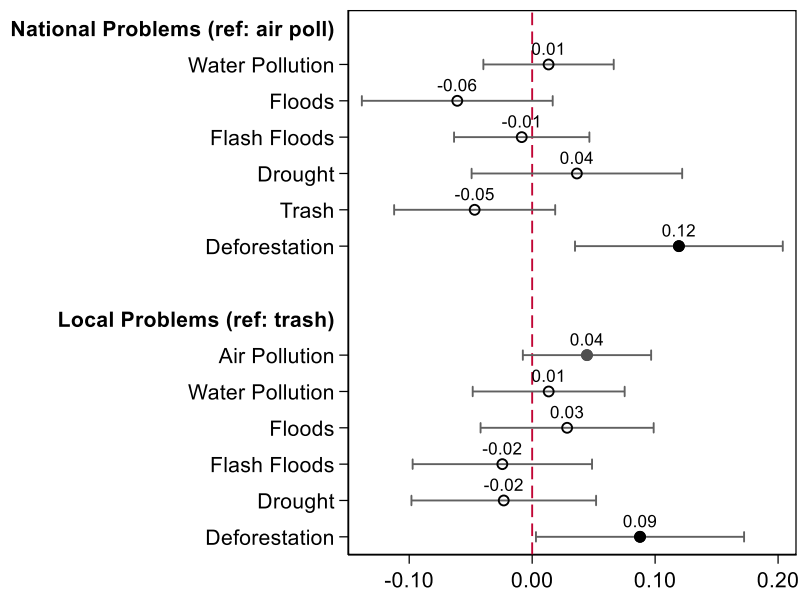
Figure 3.8. These are the changes in predicted probability of citing climate change as a very serious problem associated with the different perceptions of the national and local environmental problems. The covariates found in Figures 3.4 and Figure 3.6 are also included in the analysis but excluded from the figure. The dependent variable is coded such 1 is equal to the perception that climate change is very serious and 0 is all other responses (somewhat serious, not very serious, and not at all serious). Complete results of this logistic regression can be found in the Appendix, Table A3.4. The question wording and coding for all of the variables can also be found in the Appendix. The model also accounts for survey weights.

People's perceptions of environmental problems are also related to perceptions of climate change seriousness. In the Peru AmericasBarometer, respondents were asked how serious of problem climate change would be for Peru if nothing was done. Potential answers included not at all serious, a little serious, somewhat serious, and very serious. Using a logistic regression model, I look at the factors that predict a "very serious" response relative to all other answers. Figure 3.8 presents these results.

41

Controlling for the covariates found in Figures 3.4 and 3.6, I find that concern about deforestation is related to people being very concerned about climate change. This is true for both local and national perceptions of the most serious problem. The predicted probability of seeing climate change as a very serious problem increases by 12-percentage points when deforestation is seen as the most serious national problem and 9-percentage points when it is a local problem. Besides air pollution nearly reaching conventional levels of statistical significance (p=0.094), other perceptions of local and national problem are not linked to an increased probability of finding climate change very serious. It is worth reiterating that concern about climate change in the region is very high. More than three-fourths of people find it to be very serious, so perhaps explanations that exist at the individual level cannot explain the region's high mean. Despite this high mean, however, there are still some distinguishable differences in the problems that people identify and how serious of threat climate change presents for their country.

Discussion

Public opinion research on environmental attitudes aims to offer generalizations about which people prioritize the environment and which do not. These efforts, however, often overlook and ignore the possibility that what makes up "the environment" can conceptualized in different ways. In this paper, I address this potential reality by examining whether or not people think of the environment in different ways.

In more a descriptive chapter, I present an overview of public opinion in the Latin American region using the LAPOP AmericasBarometer survey. I then move to interrogate whether there are differences in how people talk and think about issues like climate change and environmental protections. I first provide some insight from focus group data in Peru, which helps to set the foundation for an analysis of survey data in the country. Using an extended battery of question in the Peru AmericasBarometer in 2017, I look to see whether the environmental problems that people identify at the local and national level vary in systematic ways. I find that geography – including subnational region and urban vs. dwelling – are correlated with how people perceive local environmental problems. The relationship between these geographic factors and national problem perceptions diminishes somewhat, but there are still important distinctions.

Importantly, these perceptions of problems also have implications for how people answer traditional public opinion questions. When presented with a trade-off between prioritizing economic growth or environmental protections, for example, people's perceptions of the national environmental problem are more strongly related to their response than local problems. This has implications not only for other chapters of this dissertation (see Chapter 2), but for the broader discussion of relevance in environmental public opinion research. If it is the case that people are matching their perceptions of the national issue to this general question about priorities, then perhaps examining explanations that rely on relevance is inappropriate.

In addition to these conceptualizations being context-dependent, there also seems to be evidence of time-dependence. In focus groups in Peru, people note that they are thinking of things like international agreements, current environmental disasters, and even specific political leaders like Donald Trump when thinking about these issues. I do not address the time component here, but this also would have implications for the null results I find in Chapter 2 of this dissertation as well as for other related work on this topic.

Broadly, this paper provides some insight as to how the conceptualization of the environment and its related aspects vary in non-random ways. People are aware that the issues that they face are not necessarily the issues that others face, and they seem to be answering public opinion surveys in ways that reflect this understanding of difference. As this field continues to grow, research should continue to recognize how conceptualizations of these issues can differ and that these differences can matter for how we look to explain environmental public opinion.

Chapter 4

Explaining Preferences for the Role of the State: An Examination of State Capacity, Quality of Government and Environmental Policy Implementation

Should the state provide the bare foundation for the way things operate? Should the state be an active policymaker and implementer? If so, should it continue to expand and take on more responsibility? Public answers to these questions matter for government policy on issues ranging from civil rights to foreign affairs (Page and Shapiro 1983; Brooks and Manza 2006). Researchers pay considerable attention to opinions about how the state ought to function – that is, economic ideology. Yet, a singular focus on the normative role of the state overlooks practical constraints based on the state's characteristics. In this chapter, I argue that how people perceive the state's capacity and quality of governance shapes preferences over an expanded vs. restricted role of government.

Attitudes toward state intervention correlate strongly with where people fall along an egalitarianism-individualism dimension and their views of benefits from state intervention (Feldman and Zaller 1992; Hasenfeld and Rafferty 1989; Blekesaune and Quadagno 2003). As people and countries become more egalitarian-minded, support for an expanded role of the government increases (Blekesaune and Quadagno 2003; Guo and Gilbert 2014; van Oorschot 2010; Feldman and Zaller 1992; Brooks and Manza 2006). Further, perceived personal benefit from an expanded welfare state predicts greater support for that expansion (Sears and Funk 1991; Hasenfeld and Rafferty 1989; Iversen and Soskice 2001). At the macro-level, publics are more supportive of welfare when the benefits are more salient, such as when the economy is doing poorly, and unemployment is high (Blekesaune 2007). Political orientations and self-interest explain a considerable amount of variation in attitudes towards the welfare state.

Despite these well-evidenced explanations, however, research on attitudes toward the role of state is incomplete. This outcome can be traced to the types of countries that are included in conventional research on preferences over the role of the state – largely politically and economically developed countries. These characteristics make certain factors, such as political predispositions, particularly well-suited for explaining variation in attitudes towards the role of the state. In less developed contexts, like Latin America, ideology is less predictive of political attitudes (Lupu 2014; Zechmeister and Corral 2013; Kitschelt et al. 2010; Roberts 2012; Cohen, Salles, and Zechmeister 2018). The potential for scholarship to have overestimated the relevance of certain factors, while overlooking others, highlights why it is necessary to further theorize about what motivates opinions. A growing body of work is addressing this (including in more developed parts of the world) by emphasizing the state itself. Broadly, the state's characteristics and attitudes towards state intervention are linked: better performing or more trusted governments are more likely to receive

support for taking on increased responsibility (Svallfors 2013; Rothstein et al. 2012; Bjørnskov and Svendsen 2013; Habibov et al. 2018; Roosma et al. 2014).

Building on this foundation that the state itself determines preferences for expanded state intervention, I develop a theoretical framework that further elucidates the link between the state and its preferred role. I bridge state capacity, quality of government, and role of the state research to argue that two key characteristics of the state – its quality and its capacity – ought to shape attitudes towards its role. The quality of government, defined as its impartiality and institutional effectiveness, shapes how people evaluate whether it is worthy of taking on new responsibility (Rothstein and Teorell 2008; Svallfors 2013). And, state capacity, or the state's ability to reach its goals (Fukuyama 2013) of extracting resources, providing public goods and security, and administrating effectively (Soifer 2012; Mann 1984; Tilly 1990; Levi 1988; North 1991), determines whether the state can take on new responsibility regardless of quality. When considered together, these two dimensions offer a more nuanced picture how people ought to evaluate the role of the state (ROS) in policymaking. Specifically, I make the case that the role state capacity plays in forming ROS attitudes should depend on how people perceive the quality of government. As perceptions of quality increase, the perception of the state's capacity ought to become more important. Without a quality government that citizens trust, there should be little reason to allocate more responsibility regardless of the state's capacity.

To examine this framework, I focus on environmental policy implementation. There is a tendency among the general public, media, and even policymakers to emphasize the state's role in crafting solutions for environmental problems (Vandenbergh and Gilligan 2017; Eakin and Lemos 2006), yet there are many non-state or private solutions that can and have been adopted (discussed more below). The viability of non-state solutions in fact is critical for advancing research on ROS. Individuals are often presented with other options, but much of the work on this topic continues to examine gradations of support for state-oriented support rather than the choice between state and non-state solutions. Applying the two-dimensional (quality and capacity) framework to this type of policy space reflects real policy options, while also contributing to how we think and talk about ROS attitudes.

I test the framework in four countries in the Latin American region. Historically, the state in Latin America has taken on a central role in society, with much political, social, and economic development funneled through state apparatuses (Vellinga 2018). Public opinion reflects this historic reality, with the majority of people generally in favor of a larger state role (discussed more below). Since many in the region favor a more comprehensive state, testing the theory here provides a stronger test because it requires a deviation from generally favorable attitudes towards the state. And as mentioned above, ideology is a less relevant factor in determining political attitudes, including ROS and environmental attitudes (Lupu 2014;

Zechmeister and Corral 2013; Kitschelt et al. 2010; Roberts 2012; Cohen, Salles, and Zechmeister 2018; Evans 2015; Evans and Zechmeister 2017; Eisenstadt and West 2019). These two realities make Latin America an ideal place to test the two-dimensional state framework.

In the sections that follow, I introduce the need to consider how people see the state when studying ROS attitudes. This is particularly relevant when there are other, non-state solutions available. From this framework, I offer a series of hypotheses that detail the relationship between perceptions of state capacity and quality, on the one hand, and preferences for non-state and state policies, on the other hand. I then present a test of the framework using original data from four Latin American countries included in the 2018/19 round of LAPOP's AmericasBarometer survey. I find that preferences for state versus non-state environmental policy are the product of how people see the state's capacity and its quality of government, with the quality dimension acting like a necessary condition: without quality, state capacity matters little to the public when considering how to allocate resources to address environmental problems. I conclude by discussing the implications of these findings for the broader academic research on the role of the state and environmental policymaking.

The Two-Dimensional State and Its Role

The debate surrounding the state's scope is now centuries long (Stiglitz and Rosengard 2015; Cordes 1997). Should the state take on a non-interventionist, minimal role in a country's economics (Smith 1776)?[19] Or, should the government be more directly involved in the state's economy, providing and overseeing things like welfare provision (Brooks and Manza 2007)? The different discourses that are used to answer these questions represent the spectrum of economic ideology (Schull 1992; Carmines et al. 2012); this economic spectrum underlies broader political and economic discussions. But, how much of attitudes towards the role of the state are explained by people's normative perceptions of the state? In this section, I briefly discuss how thinking about the normative role the state limits how we think and theorize about the ROS. Then, I review the scholarship that examines how the state and attitudes about its role are linked. Finally, I offer a discussion of how the state's capacity and quality of government should be considered in theorizing about the public's preferences for the ROS.

How does the public determine their opinions regarding the scope of the state? For many, the government's role should be minimal: the state should provide external and internal protection, and the state should provide public goods that would be inefficiently provided in the private market (Smith [1776] 1996; Lipford

---

[19] Adam Smith is often charged with championing the non-interventionist, free market government, but many scholars challenge this depiction as ignoring his other works. See for example Baum (1992) and Samuels and Medema (2005) and their discussions about how Smith's attachment to minimal government is often overstated.

and Slice 2007: 490). For others, the state should play a more active role in both economic and social policy. These normative discussions of the ROS lead scholars to rely on explanations that focus on how citizens believe the state ought to operate. Indeed, in the more developed economic and political systems of the Global North, people's worldviews and political ideology do predict how people see the role of the state. What the size and scope of the state should be, however, ignores the realities of many states. What the state should do can be a grand departure from the state can or will do. Further, the normative ideological debate does not align with how ideological labels are used across contexts. In many places, left-right self-placement, for example, does not have the same utility that it does elsewhere (Zechmeister and Corral 2013; Kitschelt et al. 2010; Roberts 2012; Evans 2015; Evans and Zechmeister 2017). In contexts where ideology is less clear then, what factors shape preferences over the state when ideological labels are less used? Building on work by other scholars and moving beyond the normative discussion, I argue the state itself plays a crucial part in developing attitudes towards its role.

The quality of government helps determine attitudes towards the welfare state. In response to the inability for social and class mobilization to explain the variation that exists in the size and scope of welfares states, Rothstein and co-authors (2012) look to microlevel explanations and outline three steps that individuals address when determining their preferences on this issue. First, speaking to the ideological component of the welfare state issue, citizens consider the normative appeal of state intervention. Second, they assess whether the institutions meant to execute the state intervention are trustworthy, or whether they believe the institutions will act in an effective and efficient manner. And, finally, individuals have to decide whether the rest of the public can be trusted to not take advantage of the system (Rothstein et al. 2012: 8-10). Theorizing about attitudes towards the ROS in this way is effectively equivalent to "bringing the state back in" to how the role of the state is discussed (ibid; Skocpol 1992).

Compelling evidence supports this claim, particularly in regard to how people perceive the quality of the institutions intended to implement the intervention. People who have better, more trustworthy perceptions of tax authorities and public service providers, for example, are more likely to support an increase in taxes to provide more public services and goods (Svallfors 2013). And, an index of institutional trust, composed of perceptions of 13 political institutions, is positively related to a willingness to pay more taxes (Habivov et al. 2018). These microlevel connections are backed up by macrolevel evidence. Governments with better quality, as measured with indicators of government effectiveness, rule of law, and corruption, lead to better provision of public health, environmental protections, and economic development (Holmberg et al. 2009).

Support for different types of environmental policy also reflects how people see their quality of government. In Rio de Janeiro, Brazil, Aklin et al. (2014) find that people blame corruption for poor enforcement of environmental policy. Why would people support a larger role of government in policy implementation if

this is to whom they are attributing poor policy enforcement? Without faith that the government will take on that responsibility in an effective and beneficent way, people will be less likely to support state intervention. This is also reflected in peoples' willingness to pay for higher priced goods or environmental taxes: support increases considerably when individuals trust the government implementing these policies (Hammar and Jagers 2006; Harring 2013; 2014; 2018).

The idea that the quality of government matters, however, assumes that the state can implement policy at all. Considering quality as the only relevant dimension takes the capacity of the state for granted. Can the state extract resources, provide basic goods and services, and administrate effectively (Soifer 2012; Hanson and Sigman 2019; Mann 1984; Cárdenas 2010)? Answers to these questions are instrumental in determining what the scope of state action is. A state that is not capable of levying taxes, enforcing policy, or providing basic services is weak, and policymaking is unlikely to be productive in a new policy arena (Levi 1988; North 1988). It is unrealistic to expect that a weak or low capacity state can act on new policy, and it is unrealistic to expect the public to entrust it do so. What an individual normatively thinks the state should do or how it should do will not necessarily match what the state can do in many regions of the world.

Indeed, low state capacity encourages individuals to look for other solutions, often non-traditional or non-state solutions. In Mexico, for example, communities have created their own security forces in response to a low capacity state (Zizumbo-Colunga 2015). People recognized that the state could not fulfill its duty to provide protection, and subsequently exited state-provided security to create their own security forces. More generally, low capacity leads people to adopt non-traditional behaviors, like protesting (Moseley 2015), and the presence of non-state actors can help people make these connections.[20]

This discussion of the quality and capacity of a state assumes that there is a possibility that other actors can provide these goods and services (Rothstein et al. 2012). Paralleling Hirschman's theory of exit and voice (1970; 1978), the public largely has two choices when it comes to preferences over policymaking actors.[21] People can either voice their concerns with the state, or they can exit to look for other solutions. The option to exit must be a viable one (ibid), and in many policy areas, like environmental policy, this is the case. When the option to exit is available, individuals ought to consider their options and engage in a utility maximizing decision-making process. In order to maximize the likelihood that an issue will be addressed

---

[20] Boulding (2010) finds that when non-governmental organizations are present and provide information about the institutional failures, people are more likely to take up non-traditional behaviors – like protesting.

[21] I do not engage with the loyalty component of Hirschman's framework here because the conditions in which loyalty is likely are not present. Expulsion is not relevant in this discussion of policymaker actors, and therefore the public would not need to respond to fear of excommunication if they were to choose. I do contend that loyalty can play a role in how people perceive their situation (e.g. loyalty to the state's administration may translate into inflated opinions of its performance), which I will discuss in later sections.

(e.g. that policy will be implemented), individuals will choose to exit if they believe the state is unlikely to implement effective policy (Simon 1955; Downs 1957; Aldrich 1993). As utility maximizers, people consider their circumstances and the likelihood that policy will be executed by the government or the exit option, making their decision over policymaking actors at least in part shaped by how likely they see the potential outcomes.

In sum, I argue that when the option to exit and problem solve elsewhere exists, people will maximize their utility and turn away from the state when they see the state as unable to act. In determining this maximization, individuals ought to consider both the quality of government and the capacity of the state. If the state is well-equipped and well-resourced, then it likely has the ability to begin implementing policy. Individuals also consider whether or not the state is motivated or likely to execute the new role well. Without trusting that the expansion will result in positive outcomes, individuals do not have reason to allocate the state more responsibility (Harring 2018; Rothstein et al. 2012; Svallfors 2013).

Implications of a Two-Dimensional State

I hypothesize that both the capacity and quality of the state affect individuals' willingness to support increasing the role of the state. Per the discussion above, each of the components has an independent effect on support for an increased ROS. Here I discuss the independent effects and interactive effects of these two state characteristics.

Consider a state that has low levels of capacity and is perceived to be low quality. Low capacity or weak states are lacking some combination of an ability to extract resources, administrate effectively, and provide basic goods and services (Soifer 2012). A state needs to be able to provide basic goods and services to its citizens before it can take on an expanded role, and if those are provided there needs to be an ability to extract more resources and administrate new policies well. An individual who does not see the provision of basic goods and services should not prefer that the state take on a larger role. Similarly, people ought to consider the quality of government. Can the state be trusted to enact policy in an effective way? If so, people should be more likely to support government policy if it is seen as trustworthy (Edlund and Lindh 2013; Bjørnskov and Tinggaard 2013; Harring 2018). In short, both capacity and quality should be independently and positively related to attitudes towards the ROS – the better the state, either in terms of capacity or quality, the more likely people should be to allocate responsibility to the state.[22]

---

[22] This is in line with Zizumbo-Colunga's (2015) discussion of vigilante groups in an area of Mexico where groups of citizens were unsatisfied with the security provided by the government, citing incapacity and collusion as reasons why the citizens needed to look for other solutions.

When considered together, I expect to find that the importance of state capacity depends on the quality of government. Capacity is crucial for the execution of the policy, but without believing that the policy would be executed by the state, capacity should not be relied upon as much. Corruption prevents countries like Angola from providing clean drinking water despite having an oil-boosted budget (New York Times 2006, cited in Rothstein 2011). Top officials' choices to neglect and ignore the Flint, Michigan water crisis have eroded trust in government and have encouraged residents consider physically exiting the city (Morckel and Terzano 2019). Bottled water consumption can be linked to perceived low-quality governments, despite most water sanitation boards in developed areas being well-equipped to provide healthy and clean water (Pachego-Vega 2019; Qian 2018). Perceptions of high government quality should serve as sort of a necessary condition for the state to be selected as the policy implementer.

Capacity, on the other hand, should serve as a sort of bonus. State capacity should increase the state's chances of being the preferred policymaking actor, given the quality is high. People who believe that the government is trustworthy and efficient, should see the state's ability as an increase their utility maximization. Alone, however, capacity is not enough to keep individuals supportive of an increased ROS. A state that is well-resourced, but is unlikely to execute policy, perhaps due to corruption (Aklin et al. 2014), would not merit the public's support of taking on more policymaking responsibility. State capacity therefore should boost support for an expanded ROS, but this will be conditional on the quality of the government (Rothstein et al. 2012).

From this discussion, several hypotheses of the two-dimensional state framework emerge:

> H1: When presented with the opportunity to increase the ROS or allocate policymaking to a non-state actor, individuals will be more likely to select the state when it has high capacity.

> H2: Presented with the choice and non-state or state policy implementation, individuals will be more likely to select the state when its quality is perceived to be high.

> H3: There is relationship between state capacity and the quality of government; as the quality of government increases, so too does the effect of state capacity.

The State in Latin America and Environmental Policy

I test the above theoretical framework and hypotheses in four Latin American countries: Mexico, Guatemala, Peru, and Paraguay. Examining the framework in this context offers two key advantages, which I briefly consider here. First, evidence suggests that left-right labels are not the master cues that they are in many other parts of the world. This can be attributed to the inconsistent usage and reliance on ideological labels. Variation in use exists at the individual-level, and institutional characteristics can help encourage or

discourage the use of the left-right cues (Zechmeister and Corral 2013). A certain amount of stability among political parties, for example, is important for individuals to have as a cheat sheet as to what the labels mean. These characteristics are often absent in the region, making it difficult to expect people to use left-right cues when party systems are volatile and the ideological labels carry less meaning (Lupu 2014; Zechmeister and Corral 2013; Kitschelt et al. 2010; Roberts 2012; Cohen, Salles, and Zechmeister 2018).

It is also the case that the state in Latin America has historically taken on a more central role in society. Much of the region's political, social, and economic development has been funneled through the state (Vellinga 2018). Economic crises in the late 20th century began to change the role of the state, shifting the power away from it. Despite this shift, public opinion reflects a generally high preference for the state's presence in policymaking (Figure 4.1). A majority of people in the region report that the state should work to reduce inequality, is better at providing pensions, and is better at creating jobs. And, a large proportion of people report that they think the state should own important industries.

Figure 4.1. Role of State Attitudess in Latin America, Full AmericasBarometer Sample
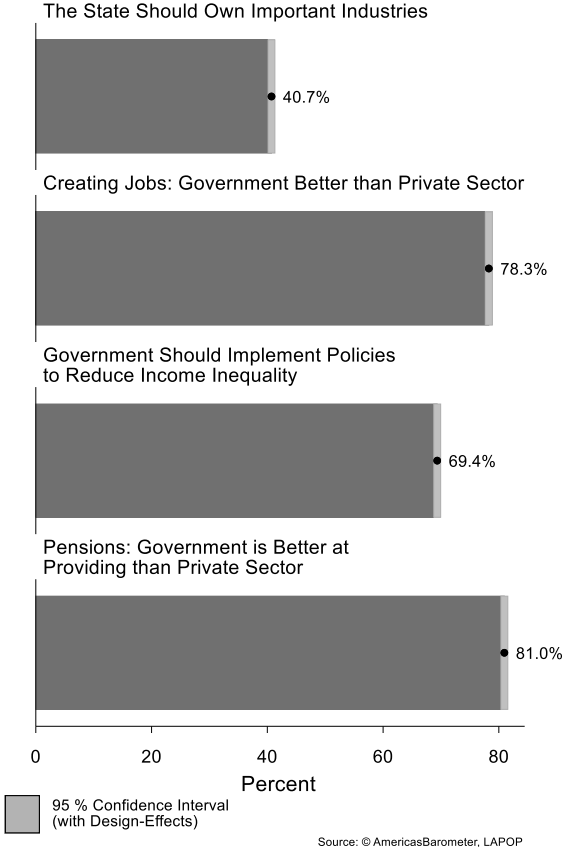
Figure 4.1. These graphs show the percentage of people in the region who agree with various role of state questions included in latest round of the LAPOP AmericasBarometer survey in which the question was asked across countries (2016/17, 2012, 2018/19, and 2010, respectively). Question wording can be found in the

appendix, but in all cases, respondents were asked about the extent the agree or disagree with these statements on a 1 (strongly disagree) to 7 (strongly agree) scale. In this figure, bars indicate the percentage of people who answered with a 5, 6, or 7. See Appendix for the distribution of these ROS attitudes by country.

Moreover, these preferences for the ROS are only weakly associated with ideological labels. In Figure 4.2, I show the distribution of agreement with the ROS questions asked in Figure 4.1 across left-right self-placement. While there are some policies with statistically statistic significant differences across left-right placement, there is no clear pattern that suggests that ROS attitudes map robustly onto related ideological cues in the Latin American region. Given the inconsistent use of ideological labels and the generally high preference for the state, Latin America is an appealing region in which to theorize over what motivates someone to prefer one actor over the another to implement environmental policy. If the framework I propose has merit, it would likely be empirically supported in this context where ideology is less predictive. Additionally, on a different dimension, it provides a strong test precisely because choosing a non-state actor would be a departure from the status quo given that the state is generally preferred.

Figure 4.2. Role of State Attitudes across Left-Right Placement
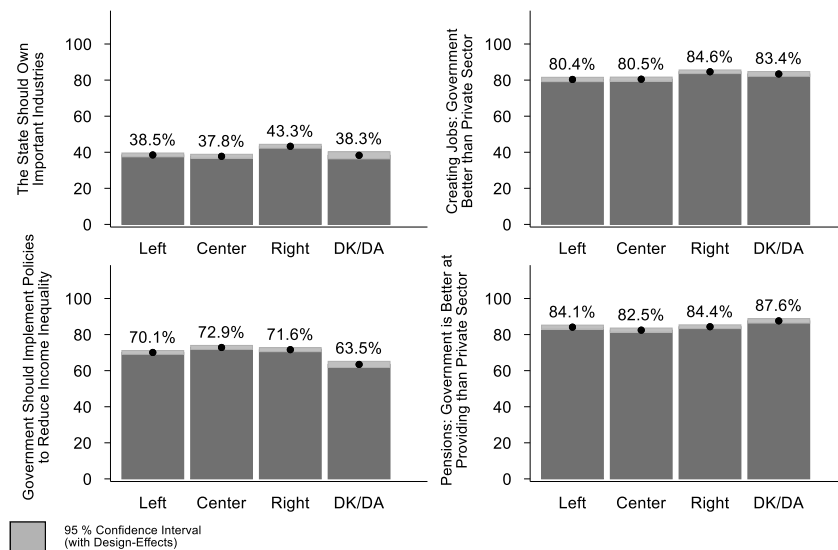
Figure 4.2. These graphs show how ROS attitudes vary across left-right self-placement. Again, for each panel, the survey being used is the latest round of the LAPOP survey in which the question was asked across countries (2016, 2012, 2018, and 2010, respectively). The left-right self-placement question originally runs on 10-point scale, but it has been collapsed into four categories. Question wording and coding can be found in the Appendix.

The notion of exiting the state for environmental policymaking is also relevant for the region with examples existing across the region. Residents in a neighborhood in Cochabamba, Bolivia have created a community-led water board that collects, cleans, and distributes water to its citizens (Vargas 2017). Similar non-state

alternatives have been taken up in El Salvador, Paraguay, and Mexico to address various water issues (Goodfriend 2017; Slawson 2017; Garcia 2016). Community-based conservation efforts (Ruiz-Mallén et al. 2015), including community natural resource monitoring (Delgado-Serrano et al. 2017), also exist. The framework I propose here would suggest that these decisions to exit state policy and look for other solutions are at least in part the product of experiencing poorly performing and low capacity states.

Operationalizing and Testing the Two-Dimensional State

To test these expectations that preferences over state versus non-state actors are at least in part determined by perceptions of the state's capacity and quality, I use survey data from the 2017/18 LAPOP AmericasBarometer survey. In this wave of the survey, I developed a question that was included on a subset of countries' questionnaires. Respondents were asked whether they would prefer that the national government give resources to their local government or to other groups, like non-governmental organizations or community organizations, to implement environmental protections.[23] I purposefully presented respondents with a trade-off between the state and an exit option. And, given the state's more central role in much of the region, I have made it such that the resources for implementing environmental policy are coming from the central or federal government. Individuals must choose then whether to extend the role of the state at their local government level or to give non-state actors the opportunity to act on environemtnal policy.[24] For the analyses that follow, I model preferences for the state versus non-state actors.

I use survey data from 4 countries: Mexico, Guatemala, Peru, and Paraguay. This subset of countries is due to the data that are available across countries in the 2018/19 AmericasBarometer.[25] These four countries are, however, generally representative of the region politically and economically. In the analysis presented below, I use logistic regressions with country-fixed effects. See Appendix for other specifications.

<u>Measuring Capacity</u>

To operationalize perceptions of state capacity, I use survey measures of goods and service provision and reach across territory (Hanson and Sigman 2011; Mann 1984; Soifer and vom Hau 2008). I leverage individuals' satisfaction with roads, public schools, and public healthcare institutions to capture the goods

---

[23] **ENV1CALT**. "Imagine that the national government has two options to implement environmental protections: On the one hand, it can give resources to your municipality to implement that protection, on the other hand, it can give funds to other groups, like non-governmental organization or community organizations that can decide how to implement and administer protection. The government can only use one of these options. Which would you prefer?"

[24] The design of this question is based in part on the International Social Survey Programme's 2010 Environment Module questions 15a and 15b.

[25] The survey questions that I use as the basis of my state capacity measure were not included in all countries in the 2018/19 round, limiting the number of countries I can test the two-dimensional state framework in.

and service provision. These measures capture both the state's ability to administer effectively by being able to provide these goods and services, while also speaking to the ability of the state to extract resources in order to pay for them. Then, I use the respondent's perceived police response time to an emergency to measure the state's territorial reach (Luna and Soifer 2015; Soifer 2012). These four measures together should speak to the nature of the state that individuals experience regularly. When public goods are unsatisfactory or police response is slow, then likely state capacity is low. It is true that these measures could capture quality of government as well, but they refrain from asking individuals about the entities providing those goods and services. Despite the potential conceptual overlap with quality of government measures then, they offer a reasonable proxy for perceptions of the capacity of government. Moreover, the local focus of the evaluations is appropriate given the nature of the dependent variable: preferences over endowing the local government or non-government actors with resources.

Figure 4.3. Average Capacity across its Component Meausures
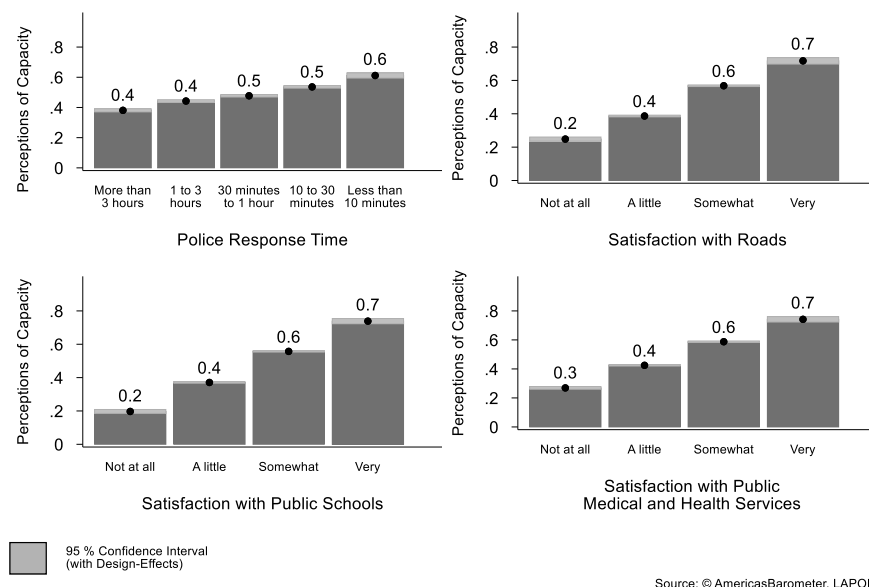
Figure 4.3. Here the single measure of government quality is examined across the levels of the three measures that make up the government quality measure. Better perceptions of corruption, not having an experience with corruption, and more trust in local government are all positively correlated with the single dimension of government quality.

I use principal component analysis (PCA) across the pooled four country sample to reduce the number of variables to a single measure of state capacity.[26] Reducing the four survey measures to a single dimension

---

[26] Doing the PCA in each individual country yields similar results for each country. These can be found in the Appendix as well.

54

yields useful results: the police response time correlates with the overall measure of capacity by 0.25, while the three satisfaction variables correlate with the overall dimension by approximately 0.55. In Figure 4.3, I show how the average capacity score from PCA varies across the individual measures of services and security provision. In all cases, higher levels of satisfaction with those services are associated with an increase in the capacity score. More discussion on the state capacity measures and the PCA are in the Appendix.

The dimension is scaled to run from lowest perceptions of capacity to highest perceptions of capacity along a 0 to 1 interval. The analyses below therefore capture how moving across the range of ability relates to the likelihood of selecting the state to implement environmental policy. Figure 4.4 shows the distribution of the capacity measure, derived from PCA.

Figure 4.4. Distribution of Perceptions of State Capacity, PCA results
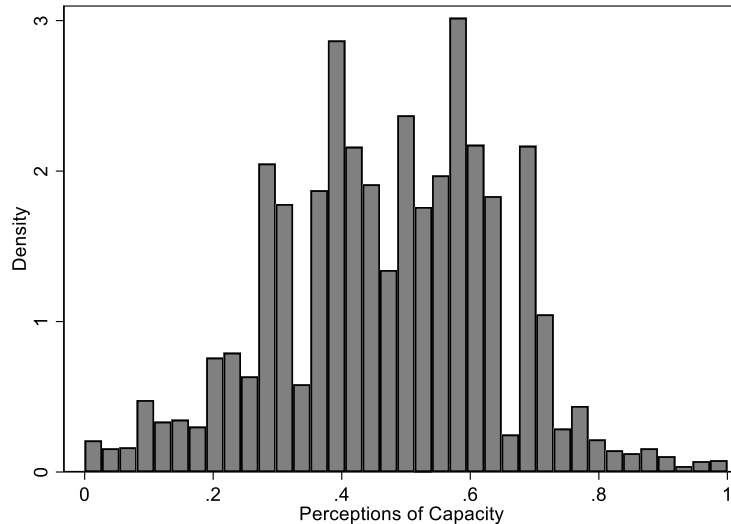
Figure 4.4. This shows the distribution of perceptions of quality of government. This measure is the product of a principal component analysis, which reduces three survey measures of quality to a single measure.

Measuring Quality

In order to capture the quality of the government, I rely on individuals' perceptions of their local government and their experience with it. Specifically, I examine trust in local government, perceptions of corruption among officials, and whether or not the individual has been asked for a bribe by local officials.

Each of these measures speaks to the impartiality of the government and its ability to act effectively and efficiently (Rothstein et al. 2012; Rothstein and Teorell 2008).[27] This follows how others have operationalized the quality of government concept – using measures of trust and corruption perceptions as indicators of whether the state can effectively take on more responsibility (Svallfors 2013; Harring 2016). Here, I am testing how these experiences and opinions of the quality of government affect how people think about policy implementation options.

Figure 4.5. Average Quality across its Component Meausures
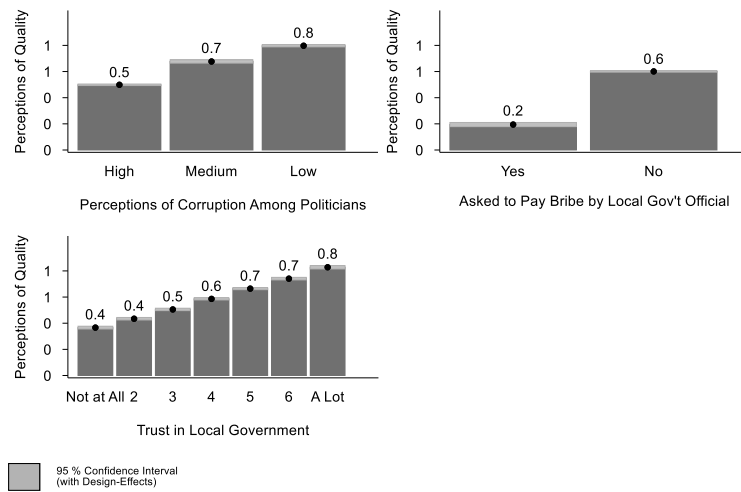
Figure 4.5. Here the single measure of government quality is examined across the levels of the three measures that make up the government quality measure. Better perceptions of corruption, not having an experience with corruption, and more trust in local government are all positively correlated with the single dimension of government quality.

Once again using principal component analysis for the pooled four country sample, I reduce these three variables to a single dimension of government quality. The three components each correlate with the single dimension of quality by a minimum of 0.46. Figure 4.5 shows how the quality dimension scores, derived

---

[27] Note that I use two measures of perceptions of corruption among officials. In the Mexico, Guatemala, and Peru surveys the country sample was split such that half received one version of a question about corruption among officials and the other half received another. Both ask respondents about the perceived level of corruption, but they are asked on different scales. In the analysis presented here, the two variables are combined to capture levels of low, medium, and high levels of corruption among politicians. Analysis with the separate questions can be found in the Appendix, Table A4.3.

from PCA, vary across the three individual survey measures. As I would expect, those with perceptions of corruption, experience with corruption, and low trust in local government all score lower on the quality dimension. More information on this dimension and its construction can be found in the Appendix. As with the capacity measure, the variable is coded to run from lowest perceptions of quality to highest on a 0 to 1 scale. Figure 4.6 shows the distribution of perceptions of the quality of government.

Figure 4.6. Distribution of Perceptions of Quality of Government, PCA results[28]
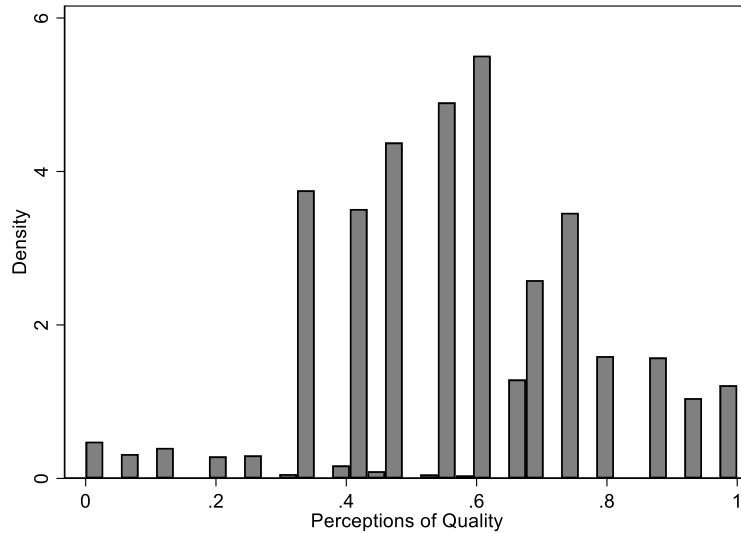
Figure 4.6. This figure shows the distribution of perceptions of quality of government. This measure is the product of a principal component analysis, which reduces three survey measures of quality to a single measure.

Results

Before assessing the relationship between state capacity and quality of government and preferences for state-based policymaking, I present a baseline model that examines the effects of sociodemographic characteristics and political orientations, as measured by self-reported ideological placement.[29] In Figure 4.7, I show the changes in predicted probability of choosing the state over non-state actors associated with each of the sociodemographic and self-placement variables. Older age cohorts are more likely to support state-orientated solutions, relative to the youngest age cohort. Otherwise, baseline characteristics, including political orientations, do not explain preferences in Mexico, Guatemala, Peru, and Paraguay. As Figure 4.7

---

[28] Given the skewed nature of this variable, I examined whether a curvilinear relationship existed between perceptions of quality non-state preferences. This is indeed the case, and results showing this can be found in the Appendix. Given that this did not emerge out of theoretical expectations, however, I refrain from discussing this relationship in the paper. See Table A4.5 and Figure A4.2.

[29] Question wording and coding for all of the variables included in this paper can be found in the Appendix.

57

communicates, those who place themselves in the middle or on the right of a left-right self-placement scale are no more likely than those on the left to prefer that the state implement environmental policy. This provides support for the notion that attitudes towards the ROS are not necessarily the product of normative preferences. All of the variables included in Figure 4.7 are included as controls in subsequent models.

Figure 4.7. Change in Predicted Probability of Preferring the State, Baseline
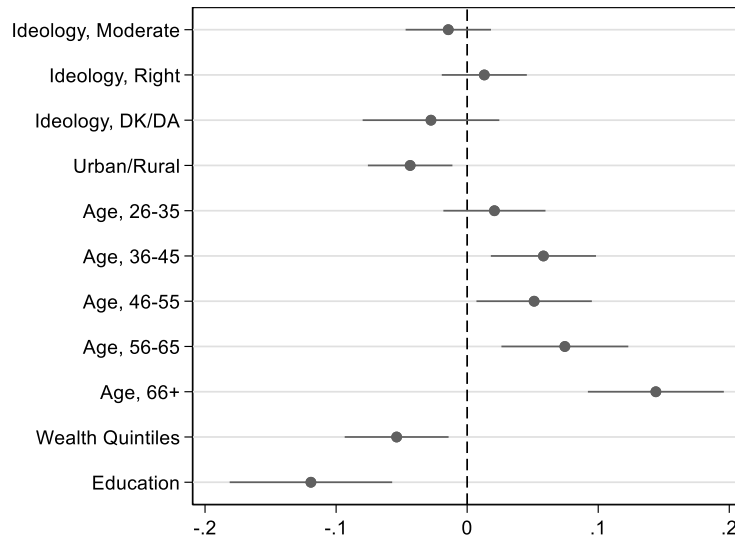
Figure 4.7. This figure shows the changes in predicted probability of selecting the state versus non-state actor from a logistic regression model that includes country-fixed effects. Country-fixed effects are omitted from the figure. All variables are rescaled to run on 0 to1 scale, with 0 representing the minimum possible value of the variable and 1 representing the highest possible scale. Age and left-right self-placement are categorical variables with the 16-24 age category and self-placement on the left serving as reference categories, respectively. Full output can be found in the Appendix, Table A4.1.

The two-dimensional state framework, on the other hand, does predict whether individuals prefer state versus non-state actors. Figure 4.8 presents these results. In a model that includes the covariates form the baseline model, country-fixed effects, and the measures of capacity and quality detailed above, a minimum to maximum increase in perceptions of government quality is related to a 34.1 percentage point increase in the likelihood choosing the state to implement environmental policy. Moving from minimum perceived state capacity to maximum perceived state capacity increases the probability of selecting the state by 18.2 percentage points. People who experience low capacity or low-quality governments are considerably more likely to move away from the state than those who have more positive views and experiences with the state and government. Those who see the state as capable and likely to effectively administrate are content with allocating a larger role to the state. This provides evidence for hypotheses 1 and 2, which posit that moves away from the state are the product of low capacity and low-quality states.

58

Figure 4.8. Effects of Quality and Capacity on Changes in Predicted Probability of Selecting the State
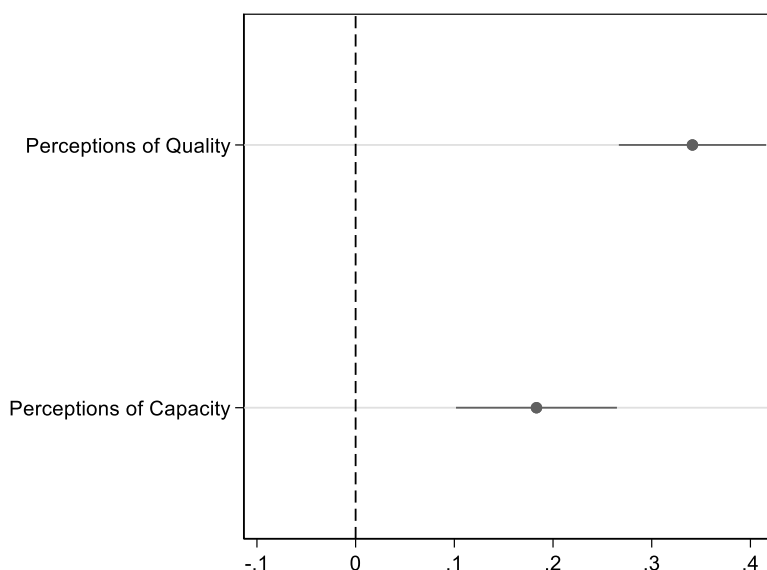
Figure 4.8. This figure shows the change in predicted probability of selecting the state versus non-state actor in logistic regression with country-fixed effects. Both the capacity and quality variables are rescaled to run on 0 to1 scale, with 0 representing the minimum possible value of the variable and 1 representing the highest possible scale. Controls for age, education, wealth, gender, urban versus rural residence, and political ideology are included in the analysis but omitted from the figure. Full results can be found in the Appendix, Table A4.2, along with country specific analysis.

Turning to the third hypothesis that the effect of state capacity increases when the perceived quality of government is high, I first examine the interaction between the two dimensions. In Table 4.1, I present the condensed results of an interacted model. The interaction between capacity and quality very nearly reaches conventional levels of statistical significance for a one-tailed test at p = 0.133 (full table in Appendix, Table A4.3). Despite falling short of conventional levels of statistical significance, however, the magnitude of the relationship between capacity and preferences for the state does increase as levels of quality increase.

Table 4.1. Condensed Logistic Regression Output of Interaction between State Capacity and Quality of Government

VARIABLES	Prefer the State
Perceptions of Quality	0.932**
	(0.435)

59

Perceptions of Capacity	0.096
	(0.529)
Capacity * Quality	1.238
	(0.822)
Constant	-1.423***
	(0.316)

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

Table 4.1. This table shows the condense output from a logistic regression with country-fixed effects. Both the capacity and quality variables are rescaled to run on 0 to1 scale, with 0 representing the minimum possible value of the variable and 1 representing the highest possible scale. Controls for age, education, wealth, gender, urban versus rural residence, and political ideology are included in the analysis but omitted from the table. See Appendix Table A4.3 for full results.

In Figure 4.9, I show capacity's average maginal effect on the probability of choosing the state across levels of quality. As perceptions of quality increase, the marginal effect of capacity increases from a 1.5 percentage-point increase in the the likelihood of choosing the state at the lowest perceptions of quality to a 31.7 percentage-point increase in the likelihood at the highest perceptions of quality. The difference between these marginal effects of lowest and highest quality is also statistically distinguishable at $p=0.05$.[30] Since the interaction can only determine whether the capacity and quality measures are conditional on one another, I cannot conclude that the it is quality doing the work to make capacity more important. The reverse could also be true.

---

[30] The difference between the marginal effects of capacity are all statistically distinguishable from one another except the differences between quality=0.4 and quality =0.8 and quality = 0.8 and quality =1.

Figure 4.9. Marginal Effects of Capacity across Quality

Average Marginal Effects of Capacity with 95% CIs
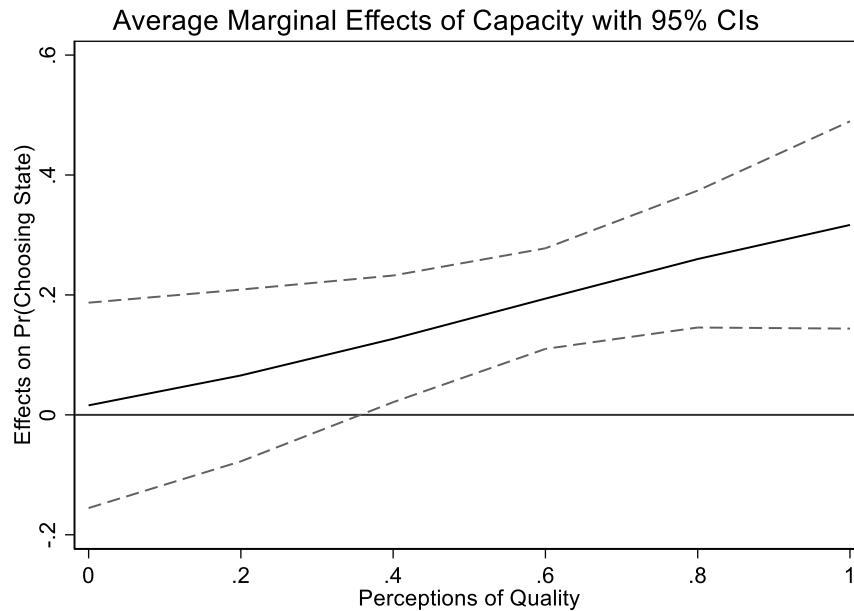
Figure 4.9. This figure shows how the change in the probability of choosing the state versus non-state due to capacity changes across levels of quality. Both the capacity and quality variables are rescaled to run on 0 to1 scale, with 0 representing the minimum possible value of the variable and 1 representing the highest possible scale. Controls for age, education, wealth, gender, urban versus rural residence, left-right self-placement, and country-fixed effects are included in the model.

Therefore, I turn to examining a categorical specification of quality to determine whether the coefficient for capacity at each level of quality increases. To do so, I create quartiles of quality perceptions, with 25% of the distribution falling into one of four distinct quality levels. Then, in an otherwise similar model as above, I interact each level of quality perceptions with capacity (rather than a continuous measure of quality). Figure 4.10 plots the average marginal effects of capacity for each of the levels of quality perceptions. Among those with the lowest and highest quartiles of perceptions of quality, the effect of capacity is distinguishable from zero. This suggests that at the ends of the quality spectrum, improved perceptions of state capacity do increase the likelihood of selecting the state. The marginal effect at the highest levels of quality is statistically distinct from the two middle quartiles but is not distinguishable from the lowest level. The average marginal effect for the lowest level, on the other hand, is not distinguishable from the any of the other quartiles of perceptions of quality.

Figure 4.10. Marginal Effects of Capacity across Levels of Categorical Coding of Quality
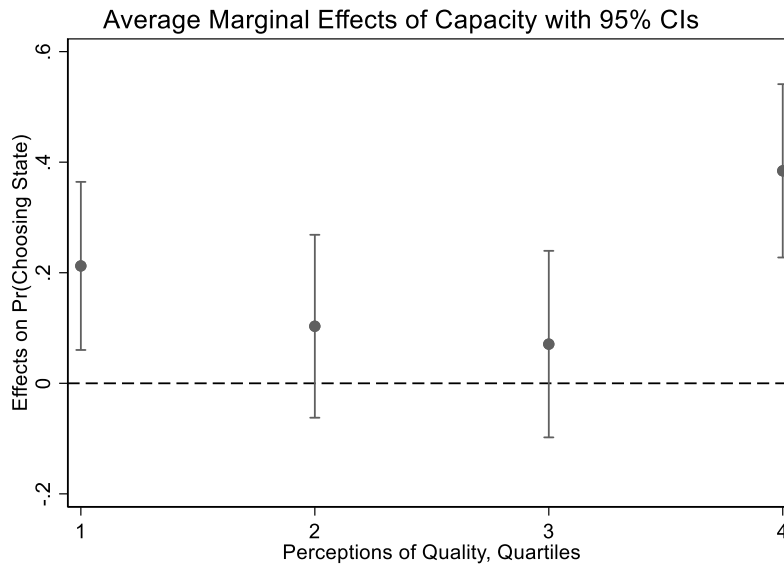
Figure 4.10. Like Figure 4.9, this figure shows the results of an interaction between capacity and quality. Unlike Figure 4.9, however, Figure 4.10 looks at a categorical variable of quality that separates scores into four quartiles. Then, each individual-level of quality is interacted with the continuous measure of capacity. Coefficients show the marginal effect of capacity at each distinct level of quality. Controls for age, education, wealth, gender, urban versus rural residence, political ideology, and country-fixed effects are included in the analysis but omitted from the model.

These interactive models suggest that there is some support for my third hypothesis: people's perceptions of state capacity matter more as the quality of government improves. As trust in the local government improves, for example, it seems as though people are willing to give credit to the state's capacity. This increases the likelihood that the state is selected as the environmental policy implementer. An interesting pattern that emerges here is that it seems those with low perceptions of quality are also relying on their perceptions of capacity to choose the state. Why this is the case provides an interesting puzzle for future research.

One potential reason might be that capacity and quality work to offset the absence of the other. In scenarios where quality is low then, increased state capacity will work in favor of the state. Similarly, in scenarios where capacity is low the effect of quality may increase the probability the state is preferred. In a similar analysis, however, where levels of capacity are constructed from quartiles of the capacity measure, I do not find support for this idea. The effect of quality is statistically distinct and substantively smaller for those with the lowest perceptions of capacity, suggesting that the two dimensions are not working to offset one another.

Figure 4.11. Marginal Effects of Quality across Levels of Categorical Coding of Capacity
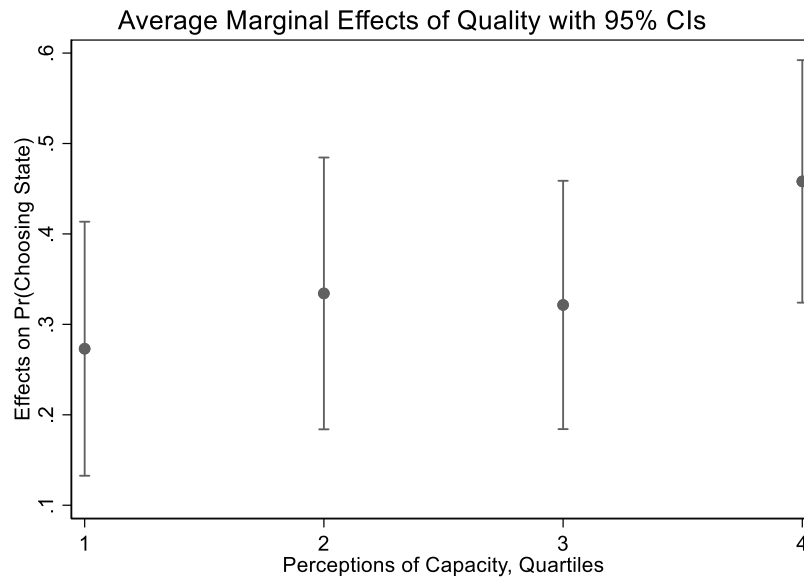
Figure 4.11. Like Figure 10, this figure shows the results of an interaction between capacity and quality. Here capacity is a categorical variable that separates capacity scores into four quartiles. Then, each individual-level of capacity is interacted with the continuous measure of quality. Coefficients show the marginal effect of quality at each distinct level of capacity. Controls for age, education, wealth, gender, urban versus rural residence, and political ideology are included in the analysis but omitted from the model.

In general, all of these results point to the importance of including the state itself in theorizing over the role of the state. People may prefer a smaller or larger role of state in the abstract, but this does not always reflect their reality. Instead, the state's capacity and quality provide scope conditions on what is possible, and people appear to incorporate these perceptions when choosing between state and other solutions. Moreover, there is preliminary evidence that suggests that the quality of government can carry a significant portion of the work in moving people towards or away from state-oriented policymaking. People who perceive their quality of government to be higher rely more on the state's capacity in making their decision to select the state than those who perceive lower levels of government quality.

Discussion

The role of the state literature has often focused on its normative role, and consequently explanations that focus on ideology have received considerable attention. Often, however, ideology does not take such a prominent place. In many contexts, ideological labels are not consistently used political cues that map onto

political attitudes. And, perhaps more importantly, the normative can ignore reality. What the state should do and what it can or will do can be drastically different things. Given this, I develop a framework about role of the state (ROS) attitudes that focuses on the characteristics of the state itself in determining how people see its role.

Drawing on state capacity and quality of government literature, I argue that people use their perceptions of the state's capacity and its quality of government to determine whether the state should take on more responsibility. As perceptions of the ability of the state to extract resources and govern efficiently improve, the state should be seen as more worthy of the increased responsibility – independent of peoples' normative view of the state. Then, I offer a more nuanced expectation that the effect of capacity should matter for those who perceive the quality of government to be high. People living in contexts where they see the state as well-intentioned and benevolent should rely on state capacity more than those who do not have as positive evaluations of the quality of government.

Due to the reduced usage of ideological labels and the generally high preference for the state across Latin America, I test my expectations in four Latin American countries. Focusing on environmental policy implementation, I use survey data from the 2018/19 AmericasBarometer surveys of Mexico, Guatemala, Peru, and Paraguay. I find various degrees of support for these three hypotheses. Improved perceptions of quality and capacity each independently increase the likelihood that the state is preferred over non-state actors by significant margins. The interaction between the two paints a slightly less precise picture. As levels of quality increase, I do find that the effect of capacity increases, but conventional levels of statistical significance are not met. Moreover, it appears that at both the lowest and highest levels of government quality, people are incorporating their perceptions of state capacity. This is not the case at middling levels of quality, though, offering an opportunity for future research to tackle this potential curvilinear relationship.

In sum, the state's characteristics shape public opinion on the ROS, at least with respect to environmental policy in Latin America and – likely – more generally. When the state is seen as more capable and trustworthy, people are more likely to allocate it, rather than non-state actors, more responsibility. And, the quality of government may act as a sort of necessary condition – dictating the role that capacity plays. In developing out policy then, stakeholders and policymakers should consider whether or not a viable non-state actor exists. Citizens generally prefer the state to be responsible in much of Latin America, but in cases where the state is weak or low quality – people are more open to non-state solutions than they might otherwise be. Globalization has led to the rise in importance of non-governmental organizations and shifted away from traditional ways of governance (Kettl 2000), and how we think of the ROS debate should shift,

too. It is no longer simply private versus public, and the state is not the only option for policymaking (Vandenbergh and Gilligan 2017).

References

Agyeman, Julian, David Schlosberg, Luke Craven, and Caitlin Matthews. 2016. "Trends and Directions in Environmental Justice: From Inequity to Everyday Life, Community, and Just Sustainabilities." *Annual Review of Environment and Resources* 41: 321–40.

Aklin, Michael, Patrick Bayer, S. P. Harish, and Johannes Urpelainen. 2014. "Who Blames Corruption for the Poor Enforcement of Environmental Laws? Survey Evidence from Brazil." *Environmental Economics and Policy Studies* 16: 241–62.

Aklin, Michael, Patrick Bayer, S.P. Harish, and Johannes Urpelainen. 2013. "Understanding Environmental Policy Preferences: New Evidence from Brazil." *Ecological Economics* 94 (October 2001): 28–36.

Aldrich, John H. 1993. "Rational Choice and Turnout." *American Journal of Political Science* 37 (1): 246–78.

Anderson, Christopher J. 2000. "Economic Voting and Political Context: A Comparative Perspective." *Electoral Studies* 19 (2–3): 151–70.

Andreoni, James, and Arik Levinson. 2001. "The Simple Analytics of the Environmental Kuznets Curve." *Journal of Public Economics* 80 (2): 269–86.

Baum, Sandy. 1992. "Poverty, Inequality, and the Role of Government: What Would Adam Smith Say?" *Eastern Economic Journal* 18 (2): 143–56.

Bishop, Bradford H. 2013. "Drought and Environmental Opinion: A Study of Attitudes toward Water Policy." *Public Opinion Quarterly* 77 (3): 798–810.

Bjørnskov, Christian, and Gert Tinggaard. 2013. "Does Social Trust Determine the Size of the Welfare State? Evidence Using Historical Identification." *Public Choice* 157: 269–86.

Blekesaune, Morten. 2007. "Economic Conditions and Public Attitudes to Welfare Policies." *European Sociological Review* 23 (3): 393–403.

Blekesaune, Morten, and Jill Quadagno. 2003. "Public Attitudes toward Welfare State Policies: A Comparative Analysis of 24 Nations." *European Sociological Review* 19 (5): 415–27.

Boninger, David S., Jon A. Krosnick, and Matthew K. Berent. 1995. "Origins of Attitude Importance: Self-Interest, Social-Identification, and Value Relevance." *Journal of Personality and Social Psychology*.

Borick, Christopher P., and Barry G. Rabe. 2010. "A Reason to Believe: Examining the Factors That Determine Individual Views on Global Warming*." *Social Science Quarterly* 91 (3): 777–800.

Boulding, Carew E. 2010. "NGOs and Political Participation in Weak Democracies: Subnational Evidence on Protest and Voter Turnout from Bolivia." *The Journal of Politics* 72 (02): 456.

Brooks, Clem, and Jeff Manza. 2007. *Why Welfare States Persist: The Importance of Public Opinion in Democracies*. Chicago: University of Chicago Press.

Brooks, Jeremy, Douglas Oxley, Arnold Vedlitz, Sammy Zahran, and Charles Lindsey. 2014. "Abnormal Daily Temperature and Concern about Climate Change Across the United States." *Review of Policy Research* 31 (3): 199–217.

Burstein, Paul. 2003. "The Impact of Public Opinion on Public Policy: A Review and an Agenda." *Political Research Quarterly* 56 (1): 29–40.

Cai, Wenju, Simon Borlace, Matthieu Lengaigne, Peter van Rensch, Mat Collins, Gabriel Vecchi, Axel Timmermann, et al. 2014. "Increasing Frequency of Extreme El Niño Events Due to Greenhouse Warming." *Nature Climate Change* 4 (2): 111–16.

Cai, Wenju, Guojian Wang, Agus Santoso, Michael J. Mcphaden, Lixin Wu, Fei Fei Jin, Axel Timmermann, et al. 2015. "Increased Frequency of Extreme La Niña Events under Greenhouse Warming." *Nature Climate Change* 5 (2): 132–37.

Campbell, Angus, Philip E. Converse, Warren E. Miller, and Donald E. Stokes. 1960. *The Amerian Voter*. New York: John Wiley & Sons.

Canache, Damarys. 2012. "Citizens' Conceptualizations of Democracy: Structural Complexity, Substantive Content, and Political Significance." *Comparative Political Studies* 45 (9): 1132–58.

Carmines, Edward G., Michael J. Ensley, and Michael W. Wagner. 2012. "Political Ideology in American Politics: One, Two, or None?" *Forum (Germany)* 10 (3).

Cohen, Mollie J., Facundo E. Salles Kobilanski, and Elizabeth J. Zechmeister. 2018. "Electoral Volatility in Latin America." *Journal of Politics* 80 (3): 1–6.

Cordes, Joseph J. 1997. "Reconciling Normative and Positive Theories of Government." *American Economic Review* 87 (2): 169–72.

Córdova, Abby. 2008. "Methodological Note: Measuring Relative Wealth Using Household Asset Indicators." *Insights Series*, no. 6: 1–9.

Danneman, Victoria. 2019. "Mining Projects Foment Unrest across Latin America." *DW.Com*, September 16, 2019. https://p.dw.com/p/3PeY8 .

Delgado-Serrano, M M, J Mistry, B Matzdorf, and G Leclerc. 2017. "Community-Based Management of Environmental Challenges in Latin America and the Caribbean." *Ecology and Society* 22 (1).

Downs, Anthony. 1957. "The Basic Logic of Voting." In *An Economic Theory of Democracy*, 36–50. New York: Addison Wesley.

Eakin, Hallie, and Maria Carmen Lemos. 2006. "Adaptation and the State: Latin America and the Challenge of Capacity-Building under Globalization." *Global Environmental Change* 16 (1): 7–18.

Edlund, Jonas, and Arvid Lindh. 2013. "Institutional Trust and Welfare State Support: On the Role of Trust in Market Institutions." *Journal of Public Policy* 33 (3): 295–317.

Egan, Patrick J., and Megan Mullin. 2012. "Turning Personal Experience into Political Attitudes: The Effect of Local Weather on Americans' Perceptions about Global Warming." *The Journal of Politics* 74 (03): 796–809.

Eisenstadt, Todd A., and Karleen Jones West. 2017. "Public Opinion, Vulnerability, and Living with Extraction on Ecuador's Oil Frontier: Where the Debate Between Development and Environmentalism Gets Personal." *Comparative Politics* 49 (2): 231–51.

———. 2019. *Who Speaks for Nature?* Oxford University Press.

Evans, Claire Q. 2015. "Rethinking Environmental Attitudes in Latin America and the Caribbean." *Insights*, no. 118.

Evans, Claire Q., and Elizabeth J. Zechmeister. 2018. "Education and Risk Assessments Predict Climate Change Concerns in Latin America and the Caribbean." *Insights*, no. 129.

Feldman, Stanley, and John R. Zaller. 1992. "The Political Culture of Ambivalence: Ideological Responses to the Welfare State." *American Journal of Political Science* 36 (1): 268–307.

Fiorina, Morris P. 1981. *Retrospective Voting in American National Elections*. Yale University Press.

Fukuyama, Francis. 2013. "What Is Governance?" *Governance* 26 (3): 347–68.

Gao, Song, Yu Liu, Yaoli Wang, and Xiujun Ma. 2013. "Discovering Spatial Interaction Communities from Mobile Phone Data." *Transactions in GIS* 17 (3): 463–81.

Garcia, Sol. 2016. "How Capturing Rain Could Save Mexico City from a Water Crisis." *The Guardian*, July 6, 2016. https://www.theguardian.com/global-development-professionals-network/2016/jul/06/capturing-rain-save-mexico-city-water-crisis.

Gassert, Francis, Matt Landis, Matt Luck, Paul Reig, and Tien Shiao. 2014. "Aqueduct Global Maps 2.1: Constructing Decision-Relevant Global Water Risk Indicators." *World Resources Institute*.

Gomez, Brad T., and Matthew J. Wilson. 2006. "Cognitive Heterogeneity and Economic Voting; A Comparative Voting Analysis of Four Electorates." *American Journal of Political Science* 50 (1): 127–45.

Goodfriend, Hilary. 2017. "Water Wars in El Salvador: Tacuba Resists." *Orth American Congress on Latin America*, 2017. https://nacla.org/news/2017/09/01/water-wars-el-salvador-tacuba-resists.

Habibov, Nazim, Alex Cheung, and Alena Auchynnikava. 2018. "Does Institutional Trust Increase Willingness to Pay More Taxes to Support the Welfare State ? Does Institutional Trust Increase Willingness to Pay More." *Sociological Spectrum* 38 (1): 51–68.

Hainmueller, Jens, and Michael J Hiscox. 2010. "Attitudes toward Highly Skilled and Low-Skilled Immigration: Evidence from a Survey Experiment." *American Political Science Review* 104 (1): 61–84.

Hammar, Henrik, and Sverker C. Jagers. 2006. "Can Trust in Politicians Explain Individuals' Support for Climate Policy? The Case of CO2 Tax." *Climate Policy* 5 (6): 613–625.

Hanson, Jonathan, and Rachel Sigman. 2019. "Leviathan's Latent Dimensions: Measuring State Capacity for Comparative Political Research." *Manuscript, Maxwell School of Citizenship and Public Affairs, Syracuse University*.

Harring, Niklas. 2013. "Corruption, Inequalities and the Perceived Effectiveness of Economic pro-Environmental Policy Instruments : A European Cross-National Study." *Environmental Science and Policy* 39: 119–28.

———. 2014. "Corruption, Inequalities and the Perceived Effectiveness of Economic pro-Environmental Policy Instruments: A European Cross-National Study." *Environmental Science and Policy* 39: 119–28.

———. 2016. "Reward or Punish? Understanding Preferences toward Economic or Regulatory Instruments in a Cross-National Perspective." *Political Studies* 64 (3): 573–92.

———. 2018. "Trust and State Intervention: Results from a Swedish Survey on Environmental Policy Support." *Environmental Science and Policy* 82 (March 2017): 1–8.

Hasenfeld, Yeheskel, and Jane Rafferty. 1989. "The Determinants of Public Attitudes Toward the

Welfare State." *Social Forces* 67 (4): 1027–48.

Hirschman, Albert O. 1970. *Exit, Voice, and Loyalty*. Cambridge, MA: Harvard University Press.

———. 1978. "Exit, Voice, and the State." *World Politics* 31 (1): 90–107.

Holmberg, Sören, Bo Rothstein, and Naghmeh Nasiritousi. 2009. "Quality of Government: What You Get." *Annual Review of Political Science* 12 (1): 135–61.

Inglehart, Ronald. 1981. "Post-Materialism in an Environment of Insecurity." *American Political Science Review* 75 (4): 880–900.

———. 1995. "Public Support for Environmental Protection: Objective Problems and Subjective Values in 43 Societies." *PS: Political Science & Politics* 28 (1): 57–72.

Israel, Debra, and Arik Levinson. 2004. "Willingness to Pay for Environmental Quality: Testable Empirical Implications of the Growth and Environment Literature." *Contributions in Economic Analysis & Policy* 3 (1): 1–24.

Iversen, Torben, and David Soskice. 2001. "An Asset Theory of Social Policy Preferences." *American Political Science Review* 95 (4): 875–93.

Kasara, Kimuli. 2007. "Tax Me If You Can: Ethnic Geography, Democracy, and the Taxation of Agriculture in Africa." *American Political Science Review* 101 (1): 159–72.

Kettl, Donald F. 2000. "The Transformation of Governance: Globalization, Devolution, and the Role of Government." *Public Administration Review* 60 (6): 488–97.

Kinder, Donald R., and D. Roderick Kiewiet. 1981. "Sociotropic Politics: The American Case." *British Journal of Political Science* 11 (2): 129–61.

Kinder, Donald R., and Roderick D. Kiewiet. 1979. "Economic Discontent and Political Behavior : The Role of Personal Grievances and Collective Economic Judgments in Congressional Voting Author (s): Donald R . Kinder and D . Roderick Kiewiet Source : American Journal of Political Science , Vol . 23 , No." *American Journal of Political Sciene* 23 (3): 495–527.

Kitschelt, Herbert, Kirk A. Hawkins, Juan Pablo Luna, Guillermo Rosas, and Elizabeth J. Zechmeister. 2010. *Latin American Party Systems*. New York, NY: Cambridge University Press.

Kollmuss, Anja, and Julian Agyeman. 2002. "Mind the Gap: Why Do People Act Environmentally and What Are the Barriers to Pro-Environmental Behavior?" *Environmental Education Research* 8 (3): 239–60.

Kvaløy, Berit, Henning Finseraas, and Ola Listhaug. 2012. "The Publics' Concern for Global Warming: A Cross-National Study of 47 Countries." *Journal of Peace Research* 49 (1): 11–22.

Latin American Public Opinion Project (LAPOP). The AmericasBarometer. www.LapopSurveys.org

Lee, Tien Ming, Ezra M. Markowitz, Peter D. Howe, Chia Ying Ko, and Anthony A. Leiserowitz. 2015. "Predictors of Public Climate Change Awareness and Risk Perception around the World." *Nature Climate Change* 5 (11): 1014–20.

Leiserowitz, Anthony A. 2005. "American Risk Perceptions: Is Climate Change Dangerous?" *Risk Analysis* 25 (6): 1433–42.

Levi, Margaret. 1988. *Of Rule and Revenue*. Los Angeles: University of California Press.

Lewis-Beck, Michael S. 1988. "Economics and the American Voter: Past, Present, Future." *Political*

Behavior 10 (1).

Liere, Kent D. Van, and Riley E. Dunlap. 1981. "Environmental Concern: Does It Make a Difference How It's Measured?" *Environment and Behavior* 13 (6): 651–76.

Luna, Juan Pablo, and Hillel David Soifer. 2015. "Surveying State Capacity." *Insights*, no. 119: 1–13. http://www.vanderbilt.edu/lapop/insights/IO919en.pdf.

Lupu, Noam. 2014. "Party Polarization and Mass Partisanship: A Comparative Perspective." *Political Behavior*, 331–56.

Mann, Michael. 1984. "The Autonomous Power of the State: Its Origins, Mechanisms and Results." *European Journal of Sociology* 25 (2): 185–213.

Mansfield, Edward D, and Diana C Mutz. 2009. "Support for Free Trade: Self-Interest, Sociotropic Politics, and Out-Group Anxiety." *International Organization* 63 (3): 425–57.

Maslow, A. H. 1943. "A Theory of Human Motivation." *Psychological Review* 50 (4): 370–96.

Mauricio Cárdenas. 2010. "State Capacity in Latin America." *Economía* 10 (2): 1–45.

McCright, Aaron M., and Riley E. Dunlap. 2011. "Cool Dudes: The Denial of Climate Change among Conservative White Males in the United States." *Global Environmental Change* 21 (4): 1163–72.

Moseley, Mason W. 2015. "Contentious Engagement: Understanding Protest Participation in Latin American Democracies." *Journal of Politics in Latin America* 7 (3): 3–48.

Murillo, Maria Victoria. 2009. *Political Competition, Partisanship, and Policy Making in Latin American Public Utilities*. Cambridge, MA: Cambridge University Press.

Mutz, Diana C. 1992. "Mass Media and the Depoliticization of Personal Experience." *American Journal of Political Science* 36 (2): 483–508.

Mutz, Diana C., and Jeffrey J. Mondak. 1997. "Dimensions of Sociotropic Behavior: Group-Based Judgements of Fairness and Well-Being." *American Journal of Political Science* 41 (1): 284–308.

Nadeua, Richard, Richard Niemi, and Antoine Yoshinaka. 2002. "A Cross-National Analysis of Economic Voting: Taking Account of the Political Context Across Time and Nations." *Electoral Studies* 21: 403–23.

Nannestad, Peter, and Martin Paldam. 1994. "The VP-Function: A Survey of the Literature on Vote and Popularity Functions after 25 Years." *Public Choice* 79 (3): 213–45.

Naumann, Gustavo, Paulo Barbosa, and Hugo Carra. 2016. "Mapping Global Patterns of Drought Risk: An Empirical Framework Based on Sub-National Estimates of Hazard, Exposure and Vulnerability." *Global Environmental Change* 39: 108–24.

North, Douglass C. 1991. "Institutions." *Journal of Economic Perspectives* 5 (1): 97–112.

Onnela, Jukka Pekka, Samuel Arbesman, Marta C. González, Albert László Barabási, and Nicholas A. Christakis. 2011. "Geographic Constraints on Social Network Groups." *PLoS ONE* 6 (4).

Oorschot, Wim van. 2010. "Public Perceptions of the Economic, Moral, Social and Migration Consequences of the Welfare State: An Empirical Analysis of Welfare State Legitimacy." *Journal of European Social Policy* 20 (1): 19–31.

Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge, MA: Cambridge University Press.

———. 2010. "Beyond Markets and States: Polycentric Governance of Complex Economic Systems." *American Economic Review* 100 (3): 641–72.

Page, Benjamin I., and Robert Y. Shapiro. 1983. "Effects of Public Opinion on Policy." *American Political Science Review* 77 (1): 175–90.

Petty, Richard E., Curtis P. Haugtvedt, and Stephen M. Smith. 1995. "Elaboration as a Determinant of Attitude Strength: Creating Attitudes That Are Persistent, Resistant, and Predictive of Behavior." In *Attitude Strength: Antecedents and Consequences*, edited by Richard E. Petty and Jon A. Krosnick. Mahwah, NJ: Erlbaum Associates.

Pew Research Center. 2017. "Globally, People Point to ISIS and Climate Change as Leading Security Threat." Global Attitudes and Trends. 2017. http://www.pewglobal.org/2017/08/01/globally-people-point-to-isis-and-climate-change-as-leading-security-threats/pg_2017-08-01_global-threats_12/.

Phithakkitnukoon, Santi, Zbigniew Smoreda, and Patrick Olivier. 2012. "Socio-Geography of Human Mobility: A Study Using Longitudinal Mobile Phone Data." *PLoS ONE* 7 (6): 1–9.

Poortinga, Wouter, Lorraine Whitmarsh, Linda Steg, Gisela Böhm, and Stephen Fisher. 2019. "Climate Change Perceptions and Their Individual-Level Determinants: A Cross-European Analysis." *Global Environmental Change* 55 (December 2018): 25–35.

Roberts, Kenneth M. 2012a. "Market Reform, Programmatic De(Alignment), and Party System Stability in Latin America." *Comparative Political Studies* 46 (11): 1422–52.

Roberts, Kenneth M. 2012b. "Market Reform, Programmatic (De)Alignment and Party System Stability in Latin America." *Comparative Political Studies* 46 (11): 1422–52.

Rohrschneider, Robert. 1988. "Citizen's Attitudes toward Environmental Issues: Selfish or Selfless?" *Comparative Political Studies* 21 (3): 347–67.

Roosma, Femke, Wim van Oorschot, and John Gelissen. 2014. "The Weakest Link in Welfare State Legitimacy: European Perceptions of Moral and Administrative Failure in the Targeting of Social Benefits." *International Journal of Comparative Sociology* 55 (6): 489–508.

Rothstein, Bo. 2011. *The Quality of Government: Corruption, Social Trust, and Inequality in International Perspective*. Chicago: University of Chicago Press.

Rothstein, Bo, Marcus Samanni, and Jan Teorell. 2012. "Explaining the Welfare State: Power Resources vs. the Quality of Government." *European Political Science Review* 4 (1): 1–28.

Rothstein, Bo, and Jan Teorell. 2008. "What Is Quality of Government? A Theory of Impartial Government Institutions." *Governance* 21 (2): 165–90.

Ruiz-Mallén, Isabel, Christoph Schunko, Esteve Corbera, Matthias Rös, and Victoria Reyes-García. 2015. "Meanings, Drivers, and Motivations for Community-Based Conservation in Latin America." *Ecology and Society* 20 (3).

Samuels, Warren J., and Steven G. Medema. 2005. "Freeing Smith from the 'Free Market': On the Misperception of Adam Smith on the Economic Role of Government." *History of Political Economy* 37 (2): 219–26.

Schläpfer, Markus, Luís M.A. Bettencourt, Sébastian Grauwin, Mathias Raschke, Rob Claxton, Zbigniew Smoreda, Geoffrey B. West, and Carlo Ratti. 2014. "The Scaling of Human Interactions with City Size." *Journal of the Royal Society Interface* 11 (98).

Schull, Joseph. 1992. "What Is Ideology? Theoretical Problems and Lessons from Soviet-Type

Societies." *Political Studies* 40 (4): 728–41.

Sears, David O., and Carolyn L. Funk. 1991. "The Role of Self-Interest in Social and Political Attitudes." *Advances in Experimental Social Psychology* 24: 1–91.

Shao, Wanyun, Barry D. Keim, James C. Garand, and Lawrence C. Hamilton. 2014. "Weather, Climate, and the Economy: Explaining Risk Perceptions of Global Warming, 2001–10." *Weather, Climate, and Society* 6 (1): 119–34.

Sheeran, Paschal. 2002. "Intention—Behavior Relations: A Conceptual and Empirical Review." *European Review of Social Psychology* 12 (1): 1–36.

Simmons, Erica S. 2016. *Meaningful Resistance: Market Reforms and the Roots of Social Protest in Latin America*. New York: Cambridge University Press.

Simon, Herbert A. 1955. "A Behavioral Model of Rational Choice." *Quarterly Journal of Economics* 69 (1): 99–118.

Skocpol, Theda. 1992. *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States*. Cambridge, MA: Harvard University Press.

Slawson, Nicola. 2017. "Rural Water Access: Why Should Countries Follow Paraguay's Lead?" *The Guardian*, May 26, 2017. https://www.theguardian.com/global-development-professionals-network/2017/may/26/rural-water-access-paraguay-success-lessons.

Smith, Adam. n.d. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Indianapolis, IN: Liberty Press.

Soifer, Hillel David. 2012. "State Power and the Economic Origins of Democracy." *Studies in Comparative International Development* 48 (1): 1–22.

Soifer, Hillel, and Matthias vom Hau. 2008. "Unpacking the Strength of the State: The Utility of State Infrastructural Power." *Studies in Comparative International Development* 43 (3–4): 219–30.

Stern, David I., Michael S. Common, and Edward B. Barbier. 1996. "Economic Growth and Environmental Degradation : The Environmental Kuznets Curve and Sustainable Development." *World Development* 24 (7): 1151–60.

Stiglitz, Joseph E., and Jay K. Rosengard. 2015. *Economics of the Public Sector*. W. W. Norton Company, Inc.

Stokes, Bruce, Richard Wike, and Jill Carle. 2015. "Global Concern about Climate Change, Broad Support for Limiting Emissions." http://www.pewglobal.org/2015/11/05/global-concern-about-climate-change-broad-support-for-limiting-emissions/?utm_source=Pew+Research+Center&utm_campaign=10d57ccb52-Weekly_Nov_5_201511_5_2015&utm_medium=email&utm_term=0_3e953b9b70-10d57ccb52-399479021.

Studer, Isabel. 2019. "Recursos Naturales de Latinoamérica y Cambio Climático." Forbes Mexico. 2019. https://www.forbes.com.mx/recursos-naturales-de-latam-y-cambio-climatico/.

Svallfors, Stefan. 2013. "Government Quality, Egalitarianism, and Attitudes to Taxes and Social Spending: A European Comparison." *European Political Science Review* 5 (3): 363–80.

Switzer, D., and A. Vedlitz. 2016. "Green Colored Lenses: Worldviews and Motivated Reasoning in the Case of Local Water Scarcity." *Environment and Behavior*.

Tilly, Charles. 1990. *Coercion and European States*. New York, NY: Blackwell.

UNESCO. 2013. "World Radio Day - Statistics on Radio." United Nations Educational, Scientific, and Cultural Organization. 2013. http://www.unesco.org/new/en/unesco/events/prizes-and-celebrations/celebrations/international-days/world-radio-day-2013/statistics-on-radio/.

Vandenbergh, Michael P., and Jonathan M. Gilligan. 2017. *Beyond Politics: The Private Governance Response to Climate Change*. New York, NY: Cambridge University Press.

Vargas, Jessica. 2017. "Itocta, Un Ejemplo En Reutilizar El Agua En Los Barrios de La Zona Sur." *Los Tiempos*, November 3, 2017.

Vellinga, Menno. 2018. *The Changing Role of the State in Latin America*. Routledge.

Zaller, John. 1992. *The Nature and Origins of Mass Opinion*. Cambridge: Cambridge University Press.

Zechmeister, Elizabeth J., and Margarita Corral. 2013. "Individual and Contextual Constraints on Ideological Labels in Latin America." *Comparative Political Studies* 46 (6): 675–701.

Zizumbo-Colunga, Daniel. 2015. "Taking the Law Int Our Hands: Trust, Social Capital and Vigilante Justice." Vanderbilt University.

Appendix for Chapter 2

Latin American Public Opinion Project Question Wording

Survey data this paper come from the Latin American Public Opinion Project's 2016/17 round of the Americas. See www.vanderbilt.edu/lapop/ for complete discussion of the survey project, including the full questionnaire, sample design, and information on survey methodology.

Question Wording

Variable	Question Wording	Notes
Climate Change Seriousness	**ENV2B**. If nothing is done to reduce climate change in the future, how serious of a problem do you think it will be for [country]? Very serious, Somewhat serious, A little serious, Not serious at all	Variable is recoded so that 1 = Very Serious, 0 = not at all, a little, and somewhat serious
Perception of Risk of Natural Disaster Harm	**DRK1**. How likely do you think it is that you or someone in your immediate family here in [country] could be killed or seriously injured in a natural disaster, such as floods, earthquakes, or hurricanes, in the next 25 years? Not likely at all, unlikely, somewhat likely, very likely	Variable is recoded so that 1 = Very likely, 0 = Not at all likely, and the intermediate values fall between the ends of the scale.
News Consumption Frequency	**Gi0**. About how often do you pay attention to the news, whether on TV, the radio, newspapers or the internet? Daily, A few times a week, A few times a month, Rarely, Never	Variable is recoded so that 1 = Daily, 0 = Never, and the intermediate values fall between the ends of the scale.
Education	Level of education - Recode of years of education to categories respondents on whether they completed some or no primary education, some secondary education, or some post-secondary education. The level of education reflects each country's education system.	0 = no or primary education, 1 = secondary education, 2 = post-secondary education, but in all models this is a series of dichotomous variables where no/primary education is the reference category.
Age	Categorical variable of age: 16/18-25, 26-35 36-45, 46-55, 56-65, 65+. The lowest age surveyed in a country reflects that country's voting age.	Like education, this is treated as a series of dichotomous variables with the youngest age group (16/18-25) is the reference category.

Wealth	Measured derived by LAPOP that captures the quintile of household wealth that a respondent falls in. See Córdova (2008) for a description of how principal components analysis is used to identify quintiles of wealth.	Rescaled to run from 0 (poorest quintile) to 1 (wealthiest quintile), with intermediate quintiles falling equidistant between.
Urban	Census specified designation of the area's urban versus rural designation	1 = urban, 0 = rural
Female	Respondent's gender	1= female, 0 = not female

Full Model Results for Figures and Additional Specifications in Chapter 2

<u>Baseline Model</u>

These are the full results of the model shown in Chapter 2 (see Figure 2.5 in Chapter 2). Here I present both the model presented in the figure in the chapter and the results of the multilevel model. There are no key differences between the specifications, so I only focus on the country-fixed effects model in the chapter.

Table A2.1. Logistic Regression Results of Community Relevance, Drought (with country-fixed effects)

VARIABLES	Country-Fixed Effects	Multilevel Model
Frequency of News Consumption	0.543***	0.540***
	(0.055)	(0.083)
Secondary Education	0.345***	0.340***
	(0.041)	(0.063)
Post-secondary Education	0.523***	0.513***
	(0.053)	(0.107)
Wealth Quintiles	0.238***	0.240***
	(0.048)	(0.054)
Ideology, Moderate	-0.009	-0.010
	(0.041)	(0.045)
Ideology, Left	-0.168***	-0.167***
	(0.040)	(0.043)
Ideology, DK/DA	0.094	0.093
	(0.059)	(0.060)
Age, 26-35	0.113**	0.112**
	(0.045)	(0.050)
Age, 36-45	0.289***	0.287***
	(0.051)	(0.052)
Age, 46-55	0.283***	0.280***
	(0.053)	(0.056)
Age, 56-65	0.254***	0.250***
	(0.062)	(0.045)
Age, 66+	0.099	0.094
	(0.066)	(0.067)
Urban versus Rural	-0.016	-0.019
	(0.038)	(0.037)
Woman	0.091***	0.091*
	(0.030)	(0.052)
Country = Guatemala	0.655***	
	(0.122)	
Country = El Salvador	0.549***	
	(0.099)	
Country = Honduras	0.323***	
	(0.094)	
Country = Nicaragua	0.423***	
	(0.098)	
Country = Costa Rica	0.264***	
	(0.094)	

Country = Panama	0.029	
	(0.113)	
Country = Colombia	0.033	
	(0.104)	
Country = Ecuador	-0.355***	
	(0.094)	
Country = Bolivia	-0.300***	
	(0.096)	
Country = Peru	-0.189**	
	(0.091)	
Country = Paraguay	-0.529***	
	(0.089)	
Country = Chile	-0.135	
	(0.103)	
Country = Uruguay	-0.302***	
	(0.105)	
Country = Brazil	0.153	
	(0.106)	
Country = Venezuela	-0.191**	
	(0.094)	
Country = Argentina	-0.322***	
	(0.095)	
Variance (Country)		0.106***
		(0.031)
Constant	0.272***	0.287***
	(0.099)	(0.103)
Observations	26,318	26,318
Number of groups		17

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

Logistic Regression Results

Tables A2.2 and A2.3 present the full results of the logistic regression models shown in Chapter 2 pertaining to the effects of community relevance measures of drought and flood on climate change seriousness (see Figure 2.6 in Chapter 2).

Table A2.2. Logistic Regression Results of Community Relevance, Drought (with country-fixed effects)

VARIABLES	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious
Drought, 55km	-0.024			
	(0.316)			
Drought, 85km		-0.008		
		(0.299)		
Drought, 130km			-0.128	
			(0.289)	
Drought, 160km				-0.092
				(0.282)
Frequency of News Consumption	0.548***	0.548***	0.548***	0.548***
	(0.055)	(0.055)	(0.055)	(0.055)
Secondary Education	0.341***	0.341***	0.341***	0.341***
	(0.041)	(0.041)	(0.041)	(0.041)
Post-secondary Education	0.514***	0.514***	0.514***	0.514***
	(0.054)	(0.054)	(0.054)	(0.054)
Wealth Quintiles	0.242***	0.242***	0.242***	0.242***
	(0.048)	(0.048)	(0.048)	(0.048)
Ideology, Moderate	-0.002	-0.002	-0.002	-0.002
	(0.041)	(0.041)	(0.041)	(0.041)
Ideology, Left	-0.163***	-0.163***	-0.163***	-0.163***
	(0.040)	(0.040)	(0.040)	(0.040)
Ideology, DK/DA	0.095	0.095	0.095	0.095
	(0.060)	(0.060)	(0.060)	(0.060)
Age, 26-35	0.114**	0.114**	0.114**	0.114**
	(0.045)	(0.045)	(0.045)	(0.045)
Age, 36-45	0.294***	0.294***	0.294***	0.294***
	(0.052)	(0.052)	(0.052)	(0.052)
Age, 46-55	0.296***	0.296***	0.296***	0.296***
	(0.054)	(0.054)	(0.054)	(0.054)
Age, 56-65	0.247***	0.247***	0.247***	0.247***
	(0.062)	(0.062)	(0.062)	(0.062)
Age, 66+	0.091	0.091	0.091	0.091
	(0.067)	(0.067)	(0.067)	(0.067)
Urban versus Rural	-0.021	-0.021	-0.021	-0.021
	(0.039)	(0.039)	(0.039)	(0.039)
Woman	0.080***	0.080***	0.080***	0.080***

	(0.031)	(0.031)	(0.031)	(0.031)
Country = Guatemala	0.674***	0.675***	0.664***	0.666***
	(0.127)	(0.128)	(0.129)	(0.129)
Country = El Salvador	0.563***	0.563***	0.555***	0.557***
	(0.100)	(0.101)	(0.101)	(0.101)
Country = Honduras	0.337***	0.337***	0.331***	0.332***
	(0.095)	(0.095)	(0.096)	(0.096)
Country = Nicaragua	0.426***	0.427***	0.420***	0.422***
	(0.099)	(0.100)	(0.100)	(0.100)
Country = Costa Rica	0.269***	0.270***	0.261***	0.263***
	(0.097)	(0.097)	(0.097)	(0.098)
Country = Panama	0.028	0.028	0.019	0.022
	(0.115)	(0.115)	(0.116)	(0.116)
Country = Colombia	0.032	0.032	0.029	0.030
	(0.105)	(0.106)	(0.106)	(0.106)
Country = Ecuador	-0.350***	-0.350***	-0.345***	-0.346***
	(0.096)	(0.096)	(0.096)	(0.097)
Country = Bolivia	-0.279***	-0.279***	-0.278***	-0.278***
	(0.095)	(0.095)	(0.095)	(0.095)
Country = Peru	-0.182*	-0.182*	-0.171*	-0.173*
	(0.093)	(0.093)	(0.095)	(0.095)
Country = Paraguay	-0.541***	-0.540***	-0.546***	-0.545***
	(0.092)	(0.092)	(0.092)	(0.093)
Country = Chile	-0.127	-0.128	-0.121	-0.122
	(0.107)	(0.107)	(0.107)	(0.107)
Country = Uruguay	-0.294***	-0.293***	-0.300***	-0.299***
	(0.108)	(0.108)	(0.108)	(0.108)
Country = Brazil	0.155	0.156	0.149	0.150
	(0.107)	(0.107)	(0.107)	(0.107)
Country = Venezuela	-0.191**	-0.191**	-0.197**	-0.196**
	(0.096)	(0.096)	(0.096)	(0.097)
Country = Argentina	-0.337***	-0.336***	-0.340***	-0.339***
	(0.097)	(0.097)	(0.097)	(0.097)
Constant	0.274**	0.272**	0.300**	0.295**
	(0.115)	(0.119)	(0.122)	(0.127)
Observations	25,769	25,769	25,769	25,769

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

Table A2.3. Logistic Regression Results of Community Relevance, Flood (with country-fixed effects)

VARIABLES	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious
Flood, 55km	-0.152			
	(0.163)			
Flood, 85km		-0.135		
		(0.178)		
Flood, 130km			-0.140	
			(0.156)	
Flood, 160km				-0.109
				(0.166)
Frequency of News Consumption	0.548***	0.548***	0.548***	0.548***
	(0.055)	(0.055)	(0.055)	(0.055)
Secondary Education	0.341***	0.341***	0.341***	0.341***
	(0.041)	(0.041)	(0.041)	(0.041)
Post-secondary Education	0.513***	0.513***	0.513***	0.513***
	(0.054)	(0.054)	(0.054)	(0.054)
Wealth Quintiles	0.243***	0.242***	0.243***	0.242***
	(0.048)	(0.048)	(0.048)	(0.048)
Ideology, Moderate	-0.002	-0.002	-0.002	-0.002
	(0.041)	(0.041)	(0.041)	(0.041)
Ideology, Left	-0.163***	-0.163***	-0.163***	-0.163***
	(0.040)	(0.040)	(0.040)	(0.040)
Ideology, DK/DA	0.095	0.095	0.095	0.095
	(0.060)	(0.060)	(0.060)	(0.060)
Age, 26-35	0.114**	0.114**	0.114**	0.114**
	(0.046)	(0.045)	(0.045)	(0.045)
Age, 36-45	0.294***	0.294***	0.294***	0.294***
	(0.052)	(0.052)	(0.052)	(0.052)
Age, 46-55	0.296***	0.296***	0.296***	0.296***
	(0.054)	(0.054)	(0.054)	(0.054)
Age, 56-65	0.247***	0.247***	0.247***	0.247***
	(0.062)	(0.062)	(0.062)	(0.062)
Age, 66+	0.090	0.090	0.090	0.090
	(0.067)	(0.067)	(0.067)	(0.067)
Urban versus Rural	-0.021	-0.021	-0.020	-0.021
	(0.039)	(0.039)	(0.039)	(0.039)
Woman	0.080***	0.080***	0.080***	0.080***
	(0.031)	(0.031)	(0.031)	(0.031)
Country = Guatemala	0.695***	0.691***	0.699***	0.698***
	(0.127)	(0.127)	(0.128)	(0.130)
Country = El Salvador	0.594***	0.590***	0.599***	0.595***

	(0.105)	(0.105)	(0.107)	(0.110)
Country = Honduras	0.366***	0.363***	0.368***	0.363***
	(0.100)	(0.100)	(0.100)	(0.102)
Country = Nicaragua	0.459***	0.453***	0.463***	0.455***
	(0.104)	(0.104)	(0.106)	(0.107)
Country = Costa Rica	0.283***	0.286***	0.292***	0.287***
	(0.096)	(0.097)	(0.098)	(0.098)
Country = Panama	0.012	0.016	0.017	0.017
	(0.114)	(0.114)	(0.114)	(0.114)
Country = Colombia	0.070	0.060	0.062	0.054
	(0.117)	(0.114)	(0.112)	(0.111)
Country = Ecuador	-0.353***	-0.351***	-0.348***	-0.348***
	(0.096)	(0.096)	(0.096)	(0.096)
Country = Bolivia	-0.279***	-0.278***	-0.273***	-0.274***
	(0.095)	(0.095)	(0.096)	(0.096)
Country = Peru	-0.197**	-0.194**	-0.195**	-0.191**
	(0.092)	(0.093)	(0.093)	(0.092)
Country = Paraguay	-0.535***	-0.533***	-0.529***	-0.531***
	(0.091)	(0.092)	(0.092)	(0.092)
Country = Chile	-0.148	-0.146	-0.151	-0.148
	(0.108)	(0.109)	(0.109)	(0.110)
Country = Uruguay	-0.312***	-0.309***	-0.305***	-0.302***
	(0.109)	(0.109)	(0.108)	(0.108)
Country = Brazil	0.157	0.157	0.161	0.161
	(0.106)	(0.106)	(0.105)	(0.105)
Country = Venezuela	-0.205**	-0.203**	-0.204**	-0.201**
	(0.096)	(0.096)	(0.096)	(0.096)
Country = Argentina	-0.348***	-0.347***	-0.347***	-0.344***
	(0.097)	(0.097)	(0.097)	(0.097)
Constant	0.320***	0.312***	0.323***	0.313***
	(0.113)	(0.114)	(0.116)	(0.119)
Observations	25,769	25,769	25,769	25,769

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

Logistic Regression Results for Interactive Models

Tables A2.4 and A2.5 show the full results of the interaction in the logistic regression model shown in Chapter 2 (see Figure 2.7 in Chapter 2). Table A2.4 shows the interaction between drought and news consumption, and Table A2.5 shows the interaction between flood incidence and news consumption.

Table A2.4 Logistic Regression Output for Interaction between News Consumption and Drought Severity

VARIABLES	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious
Frequency of News Consumption	0.662***	0.672***	0.666***	0.682***
	(0.171)	(0.180)	(0.177)	(0.181)
Drought, 55km	0.626			
	(1.050)			
News Consumption*Drought, 55km	-0.767			
	(1.115)			
Drought, 85km		0.579		
		(0.919)		
News Consumption*Drought, 85km		-0.695		
		(0.969)		
Drought, 130km			0.361	
			(0.805)	
News Consumption*Drought, 130km			-0.581	
			(0.842)	
Drought, 160km				0.386
				(0.723)
News Consumption*Drought, 160km				-0.574
				(0.750)
Secondary Education	0.341***	0.341***	0.341***	0.341***
	(0.041)	(0.041)	(0.041)	(0.041)
Post-secondary Education	0.514***	0.514***	0.514***	0.514***
	(0.054)	(0.054)	(0.054)	(0.054)
Wealth Quintiles	0.242***	0.242***	0.242***	0.242***
	(0.048)	(0.048)	(0.048)	(0.048)
Ideology, Moderate	-0.001	-0.001	-0.001	-0.001
	(0.041)	(0.041)	(0.041)	(0.041)
Ideology, Left	-0.163***	-0.163***	-0.163***	-0.163***
	(0.040)	(0.040)	(0.040)	(0.040)
Ideology, DK/DA	0.095	0.095	0.095	0.095
	(0.060)	(0.060)	(0.060)	(0.060)
Age, 26-35	0.115**	0.115**	0.115**	0.115**
	(0.046)	(0.046)	(0.046)	(0.046)
Age, 36-45	0.294***	0.294***	0.294***	0.294***
	(0.052)	(0.052)	(0.052)	(0.052)
Age, 46-55	0.297***	0.297***	0.297***	0.297***
	(0.054)	(0.054)	(0.054)	(0.054)

Age, 56-65	0.247***	0.247***	0.247***	0.247***
	(0.062)	(0.062)	(0.062)	(0.062)
Age, 66+	0.091	0.091	0.091	0.091
	(0.067)	(0.067)	(0.067)	(0.067)
Urban versus Rural	-0.021	-0.021	-0.021	-0.021
	(0.039)	(0.039)	(0.039)	(0.039)
Woman	0.080***	0.080***	0.080***	0.080***
	(0.031)	(0.031)	(0.031)	(0.031)
Country, Guatemala	0.679***	0.680***	0.668***	0.671***
	(0.127)	(0.128)	(0.129)	(0.130)
Country, El Salvador	0.566***	0.567***	0.559***	0.560***
	(0.100)	(0.101)	(0.101)	(0.102)
Country, Honduras	0.339***	0.340***	0.333***	0.335***
	(0.095)	(0.096)	(0.096)	(0.096)
Country, Nicaragua	0.429***	0.430***	0.423***	0.424***
	(0.099)	(0.100)	(0.100)	(0.100)
Country, Costa Rica	0.271***	0.272***	0.263***	0.264***
	(0.098)	(0.097)	(0.097)	(0.098)
Country, Panama	0.031	0.032	0.022	0.024
	(0.115)	(0.115)	(0.116)	(0.116)
Country, Colombia	0.033	0.033	0.030	0.031
	(0.105)	(0.105)	(0.106)	(0.106)
Country, Ecuador	-0.349***	-0.350***	-0.344***	-0.345***
	(0.096)	(0.096)	(0.096)	(0.097)
Country, Bolivia	-0.279***	-0.279***	-0.277***	-0.277***
	(0.095)	(0.095)	(0.095)	(0.095)
Country, Peru	-0.179*	-0.180*	-0.168*	-0.170*
	(0.093)	(0.093)	(0.095)	(0.095)
Country, Paraguay	-0.539***	-0.539***	-0.545***	-0.544***
	(0.092)	(0.092)	(0.092)	(0.093)
Country, Chile	-0.125	-0.126	-0.119	-0.120
	(0.107)	(0.107)	(0.107)	(0.107)
Country, Uruguay	-0.293***	-0.292***	-0.300***	-0.299***
	(0.108)	(0.108)	(0.108)	(0.108)
Country, Brazil	0.158	0.158	0.151	0.152
	(0.107)	(0.107)	(0.107)	(0.108)
Country, Venezuela	-0.190**	-0.189**	-0.196**	-0.194**
	(0.096)	(0.096)	(0.096)	(0.097)
Country, Argentina	-0.335***	-0.335***	-0.339***	-0.338***
	(0.097)	(0.097)	(0.097)	(0.097)
Constant	0.176	0.165	0.200	0.182
	(0.188)	(0.197)	(0.195)	(0.200)
Observations	25,769	25,769	25,769	25,769

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

Table A2.5 Logistic Regression Output for Interaction between News Consumption and Flood Incidence

VARIABLES	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious
Frequency of News Consumption	0.228*	0.222*	0.168	0.107
	(0.116)	(0.124)	(0.136)	(0.140)
Flood, 55km	-0.874***			
	(0.305)			
News Consumption*Flood, 55km	0.905***			
	(0.294)			
Flood, 85km		-0.903***		
		(0.342)		
News Consumption*Flood, 85km		0.955***		
		(0.332)		
Flood, 130km			-0.855***	
			(0.303)	
News Consumption*Flood, 130km			0.892***	
			(0.297)	
Flood, 160km				-0.906***
				(0.309)
News Consumption*Flood, 160km				0.986***
				(0.293)
Secondary Education	0.341***	0.341***	0.341***	0.341***
	(0.041)	(0.041)	(0.041)	(0.041)
Post-secondary Education	0.515***	0.515***	0.514***	0.515***
	(0.054)	(0.054)	(0.054)	(0.054)
Wealth Quintiles	0.241***	0.240***	0.240***	0.240***
	(0.048)	(0.048)	(0.048)	(0.048)
Ideology, Moderate	-0.003	-0.003	-0.003	-0.003
	(0.041)	(0.041)	(0.041)	(0.041)
Ideology, Left	-0.164***	-0.164***	-0.165***	-0.165***
	(0.040)	(0.040)	(0.040)	(0.040)
Ideology, DK/DA	0.092	0.092	0.091	0.091
	(0.060)	(0.060)	(0.060)	(0.060)
Age, 26-35	0.115**	0.115**	0.115**	0.115**
	(0.046)	(0.046)	(0.045)	(0.045)
Age, 36-45	0.295***	0.295***	0.295***	0.295***
	(0.051)	(0.051)	(0.051)	(0.051)
Age, 46-55	0.297***	0.297***	0.297***	0.298***
	(0.054)	(0.054)	(0.054)	(0.054)
Age, 56-65	0.248***	0.249***	0.249***	0.249***
	(0.062)	(0.062)	(0.062)	(0.062)
Age, 66+	0.094	0.094	0.094	0.095
	(0.067)	(0.067)	(0.067)	(0.067)
Urban versus Rural	-0.024	-0.023	-0.023	-0.024
	(0.039)	(0.039)	(0.039)	(0.039)
Woman	0.081***	0.081***	0.081***	0.082***

	(0.031)	(0.031)	(0.031)	(0.031)
Country, Guatemala	0.702***	0.699***	0.708***	0.709***
	(0.127)	(0.127)	(0.128)	(0.130)
Country, El Salvador	0.605***	0.603***	0.614***	0.616***
	(0.105)	(0.105)	(0.108)	(0.111)
Country, Honduras	0.375***	0.372***	0.376***	0.373***
	(0.100)	(0.101)	(0.101)	(0.102)
Country, Nicaragua	0.461***	0.457***	0.468***	0.462***
	(0.105)	(0.104)	(0.106)	(0.107)
Country, Costa Rica	0.284***	0.286***	0.292***	0.288***
	(0.096)	(0.097)	(0.098)	(0.098)
Country, Panama	0.011	0.015	0.017	0.016
	(0.115)	(0.114)	(0.114)	(0.114)
Country, Colombia	0.071	0.062	0.067	0.058
	(0.116)	(0.114)	(0.112)	(0.111)
Country, Ecuador	-0.351***	-0.349***	-0.346***	-0.345***
	(0.096)	(0.096)	(0.096)	(0.096)
Country, Bolivia	-0.276***	-0.275***	-0.270***	-0.270***
	(0.095)	(0.095)	(0.096)	(0.096)
Country, Peru	-0.186**	-0.184**	-0.183**	-0.180*
	(0.092)	(0.093)	(0.092)	(0.092)
Country, Paraguay	-0.535***	-0.534***	-0.529***	-0.530***
	(0.091)	(0.091)	(0.092)	(0.092)
Country, Chile	-0.142	-0.140	-0.143	-0.139
	(0.108)	(0.109)	(0.109)	(0.110)
Country, Uruguay	-0.297***	-0.294***	-0.291***	-0.287***
	(0.108)	(0.108)	(0.107)	(0.107)
Country, Brazil	0.160	0.161	0.166	0.167
	(0.106)	(0.106)	(0.105)	(0.105)
Country, Venezuela	-0.203**	-0.200**	-0.200**	-0.197**
	(0.096)	(0.096)	(0.096)	(0.096)
Country, Argentina	-0.340***	-0.338***	-0.337***	-0.334***
	(0.097)	(0.097)	(0.097)	(0.097)
Constant	0.575***	0.573***	0.626***	0.667***
	(0.144)	(0.150)	(0.159)	(0.165)
Observations	25,769	25,769	25,769	25,769

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

OLS Regression Results for Disaster Risk Perceptions

Table A2.6 and Table A2.7 show the results of regressing disaster risk perceptions on the community relevance measures of drought severity and flood incidence. Each independent variable has been recoded such that the coefficients are expressing the effects of a minimum to maximum change on the independent variable. The disaster risk perception remains on a four-point scale, with less concern representing the lower values and higher values indicating higher concern.

Table A2.6 OLS Regression Results of Disaster Risk Perceptions on Community Relevance of Drought

VARIABLES	Disaster Risk Perception	Disaster Risk Perception	Disaster Risk Perception	Disaster Risk Perception
Drought, 55km	0.109***			
	(0.032)			
Drought, 85km		0.086***		
		(0.033)		
Drought, 130km			0.071**	
			(0.033)	
Drought, 160km				0.052
				(0.031)
Secondary Education	0.001	0.000	0.001	0.001
	(0.006)	(0.006)	(0.006)	(0.006)
Post-secondary Education	-0.005	-0.005	-0.005	-0.005
	(0.007)	(0.007)	(0.007)	(0.007)
Wealth Quintiles	-0.032***	-0.032***	-0.032***	-0.032***
	(0.006)	(0.006)	(0.006)	(0.006)
Ideology, Moderate	0.002	0.002	0.002	0.002
	(0.005)	(0.005)	(0.005)	(0.005)
Ideology, Left	-0.017***	-0.018***	-0.018***	-0.018***
	(0.006)	(0.006)	(0.006)	(0.006)
Ideology, DK/DA	-0.012	-0.012	-0.012	-0.012
	(0.008)	(0.008)	(0.008)	(0.008)
Age, 26-35	0.032***	0.032***	0.032***	0.032***
	(0.006)	(0.006)	(0.006)	(0.006)
Age, 36-45	0.036***	0.035***	0.036***	0.035***
	(0.006)	(0.006)	(0.006)	(0.006)
Age, 46-55	0.045***	0.045***	0.045***	0.045***
	(0.007)	(0.007)	(0.007)	(0.007)
Age, 56-65	0.043***	0.043***	0.043***	0.043***
	(0.008)	(0.008)	(0.008)	(0.008)
Age, 66+	-0.000	-0.000	-0.000	-0.000
	(0.009)	(0.009)	(0.009)	(0.009)
Urban versus Rural	-0.004	-0.004	-0.004	-0.004
	(0.005)	(0.005)	(0.005)	(0.005)
Woman	0.027***	0.027***	0.027***	0.027***
	(0.004)	(0.004)	(0.004)	(0.004)
Country, Guatemala	0.100***	0.100***	0.100***	0.099***
	(0.015)	(0.015)	(0.015)	(0.015)

Country, El Salvador	0.088***	0.088***	0.088***	0.087***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Honduras	0.053***	0.052***	0.052***	0.051***
	(0.014)	(0.014)	(0.014)	(0.014)
Country, Nicaragua	0.087***	0.087***	0.086***	0.085***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Costa Rica	0.046***	0.044***	0.044***	0.043***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Panama	0.075***	0.075***	0.074***	0.073***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Colombia	0.074***	0.074***	0.075***	0.074***
	(0.014)	(0.014)	(0.014)	(0.014)
Country, Ecuador	0.088***	0.088***	0.089***	0.089***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Bolivia	0.036***	0.035***	0.035***	0.035***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Peru	0.101***	0.101***	0.100***	0.101***
	(0.012)	(0.012)	(0.012)	(0.013)
Country, Paraguay	-0.005	-0.005	-0.005	-0.006
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Chile	0.032**	0.033**	0.033***	0.034***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Uruguay	-0.015	-0.015	-0.016	-0.017
	(0.014)	(0.015)	(0.014)	(0.014)
Country, Brazil	-0.066***	-0.066***	-0.066***	-0.067***
	(0.014)	(0.014)	(0.014)	(0.014)
Country, Venezuela	0.039***	0.039***	0.039***	0.038***
	(0.013)	(0.013)	(0.014)	(0.014)
Country, Argentina	-0.065***	-0.065***	-0.066***	-0.066***
	(0.013)	(0.013)	(0.013)	(0.013)
Constant	0.570***	0.571***	0.573***	0.576***
	(0.014)	(0.015)	(0.015)	(0.015)
Observations	25,586	25,586	25,586	25,586
R-Squared	0.033	0.033	0.033	0.033

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

Table A2.7 OLS Regression Results of Disaster Risk Perceptions on Community Relevance of Flood

VARIABLES	Disaster Risk Perception	Disaster Risk Perception	Disaster Risk Perception	Disaster Risk Perception
Flood, 55km	0.033*			
	(0.020)			
Flood, 85km		0.030		
		(0.023)		
Flood, 130km			0.016	
			(0.020)	
Flood, 160km				0.003
				(0.021)
Secondary Education	0.000	0.000	0.001	0.000
	(0.006)	(0.006)	(0.006)	(0.006)
Post-secondary Education	-0.004	-0.004	-0.004	-0.004
	(0.007)	(0.007)	(0.007)	(0.007)
Wealth Quintiles	-0.032***	-0.032***	-0.032***	-0.032***
	(0.006)	(0.006)	(0.006)	(0.006)
Ideology, Moderate	0.002	0.002	0.002	0.002
	(0.005)	(0.005)	(0.005)	(0.005)
Ideology, Left	-0.018***	-0.018***	-0.018***	-0.018***
	(0.006)	(0.006)	(0.006)	(0.006)
Ideology, DK/DA	-0.012	-0.012	-0.012	-0.012
	(0.008)	(0.008)	(0.008)	(0.008)
Age, 26-35	0.032***	0.032***	0.032***	0.032***
	(0.006)	(0.006)	(0.006)	(0.006)
Age, 36-45	0.035***	0.035***	0.035***	0.035***
	(0.006)	(0.006)	(0.006)	(0.006)
Age, 46-55	0.045***	0.045***	0.045***	0.045***
	(0.007)	(0.007)	(0.007)	(0.007)
Age, 56-65	0.043***	0.043***	0.043***	0.043***
	(0.008)	(0.008)	(0.008)	(0.008)
Age, 66+	-0.000	-0.000	-0.000	-0.000
	(0.009)	(0.009)	(0.009)	(0.009)
Urban versus Rural	-0.004	-0.004	-0.004	-0.004
	(0.005)	(0.005)	(0.005)	(0.005)
Woman	0.027***	0.027***	0.027***	0.027***
	(0.004)	(0.004)	(0.004)	(0.004)
Country, Guatemala	0.089***	0.090***	0.091***	0.093***
	(0.015)	(0.015)	(0.015)	(0.015)
Country, El Salvador	0.076***	0.077***	0.079***	0.082***
	(0.013)	(0.014)	(0.014)	(0.014)
Country, Honduras	0.042***	0.043***	0.045***	0.048***
	(0.015)	(0.015)	(0.015)	(0.015)
Country, Nicaragua	0.075***	0.076***	0.078***	0.081***
	(0.014)	(0.014)	(0.014)	(0.014)
Country, Costa Rica	0.036***	0.035***	0.036***	0.038***
	(0.013)	(0.013)	(0.013)	(0.013)

Country, Panama	0.072***	0.071***	0.070***	0.069***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Colombia	0.065***	0.067***	0.070***	0.072***
	(0.014)	(0.014)	(0.014)	(0.014)
Country, Ecuador	0.093***	0.092***	0.092***	0.092***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Bolivia	0.036***	0.035***	0.035***	0.036***
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Peru	0.110***	0.109***	0.108***	0.107***
	(0.012)	(0.012)	(0.012)	(0.012)
Country, Paraguay	-0.010	-0.010	-0.010	-0.009
	(0.013)	(0.013)	(0.013)	(0.013)
Country, Chile	0.041***	0.041***	0.040***	0.038***
	(0.013)	(0.013)	(0.013)	(0.014)
Country, Uruguay	-0.016	-0.017	-0.019	-0.020
	(0.015)	(0.015)	(0.015)	(0.015)
Country, Brazil	-0.070***	-0.071***	-0.071***	-0.071***
	(0.014)	(0.014)	(0.014)	(0.014)
Country, Venezuela	0.038***	0.037***	0.036***	0.035**
	(0.014)	(0.014)	(0.014)	(0.014)
Country, Argentina	-0.065***	-0.066***	-0.067***	-0.068***
	(0.013)	(0.013)	(0.013)	(0.013)
Constant	0.579***	0.580***	0.583***	0.588***
	(0.015)	(0.015)	(0.015)	(0.016)
Observation	25,586	25,586	25,586	25,586
R-squared	0.033	0.033	0.033	0.033

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

Multilevel Model Results – Additional Specifications

Tables A2.8 and A2.9 show multilevel logistic regression results of the same models found in Tables A2.2 and A2.3, which show logistic regression with country-fixed effects.

Table A2.8. Multilevel Logistic Regression Results of Community Relevance, Drought

VARIABLES	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious
Drought, 55km	-0.130			
	(0.341)			
Drought, 85km		-0.117		
		(0.323)		
Drought, 130km			-0.243	
			(0.339)	
Drought, 160km				-0.203
				(0.314)
Frequency of News Consumption	0.545***	0.545***	0.545***	0.545***
	(0.085)	(0.085)	(0.084)	(0.084)
Secondary Education	0.336***	0.336***	0.336***	0.336***
	(0.065)	(0.065)	(0.065)	(0.065)
Post-secondary Education	0.504***	0.504***	0.505***	0.504***
	(0.106)	(0.106)	(0.106)	(0.106)
Wealth Quintiles	0.244***	0.244***	0.244***	0.244***
	(0.055)	(0.055)	(0.055)	(0.055)
Ideology, Moderate	-0.002	-0.002	-0.002	-0.002
	(0.046)	(0.046)	(0.046)	(0.046)
Ideology, Left	-0.163***	-0.162***	-0.163***	-0.163***
	(0.044)	(0.044)	(0.044)	(0.044)
Ideology, DK/DA	0.093	0.093	0.093	0.093
	(0.061)	(0.061)	(0.061)	(0.061)
Age, 26-35	0.113**	0.113**	0.113**	0.113**
	(0.050)	(0.050)	(0.050)	(0.050)
Age, 36-45	0.292***	0.292***	0.292***	0.292***
	(0.051)	(0.051)	(0.051)	(0.051)
Age, 46-55	0.293***	0.293***	0.293***	0.293***
	(0.058)	(0.058)	(0.058)	(0.058)
Age, 56-65	0.243***	0.243***	0.243***	0.243***
	(0.046)	(0.046)	(0.046)	(0.046)
Age, 66+	0.086	0.086	0.086	0.086
	(0.066)	(0.066)	(0.066)	(0.066)
Urban versus Rural	-0.025	-0.025	-0.024	-0.024
	(0.038)	(0.038)	(0.038)	(0.038)
Woman	0.080	0.080	0.080	0.080
	(0.053)	(0.053)	(0.053)	(0.053)
Variance (country)	0.107***	0.107***	0.105***	0.105***
	(0.032)	(0.032)	(0.031)	(0.032)
Constant	0.310***	0.312***	0.340***	0.338**
	(0.119)	(0.120)	(0.125)	(0.132)
Observations	25,769	25,769	25,769	25,769

| Number of groups | 17 | 17 | 17 | 17 |

Table A2.9. Multilevel Logistic Regression Results of Community Relevance, Flood

VARIABLES	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious	Climate Change Is Very Serious
Flood, 55km	-0.072			
	(0.122)			
Flood, 85km		-0.042		
		(0.146)		
Flood, 130km			-0.053	
			(0.129)	
Flood, 160km				-0.012
				(0.149)
Frequency of News Consumption	0.545***	0.545***	0.545***	0.545***
	(0.084)	(0.084)	(0.084)	(0.085)
Secondary Education	0.336***	0.336***	0.336***	0.336***
	(0.065)	(0.065)	(0.065)	(0.065)
Post-secondary Education	0.504***	0.504***	0.504***	0.504***
	(0.106)	(0.106)	(0.106)	(0.106)
Wealth Quintiles	0.245***	0.245***	0.245***	0.244***
	(0.054)	(0.055)	(0.054)	(0.054)
Ideology, Moderate	-0.002	-0.002	-0.002	-0.002
	(0.046)	(0.046)	(0.046)	(0.046)
Ideology, Left	-0.162***	-0.162***	-0.162***	-0.162***
	(0.044)	(0.044)	(0.044)	(0.044)
Ideology, DK/DA	0.094	0.094	0.094	0.094
	(0.061)	(0.061)	(0.061)	(0.061)
Age, 26-35	0.113**	0.113**	0.113**	0.114**
	(0.050)	(0.050)	(0.050)	(0.050)
Age, 36-45	0.292***	0.292***	0.292***	0.292***
	(0.051)	(0.051)	(0.051)	(0.051)
Age, 46-55	0.293***	0.293***	0.293***	0.293***
	(0.058)	(0.058)	(0.058)	(0.058)
Age, 56-65	0.243***	0.243***	0.243***	0.243***
	(0.046)	(0.046)	(0.046)	(0.046)
Age, 66+	0.086	0.086	0.086	0.086
	(0.066)	(0.066)	(0.066)	(0.066)
Urban versus Rural	-0.025	-0.024	-0.024	-0.025
	(0.037)	(0.037)	(0.037)	(0.038)
Woman	0.080	0.080	0.080	0.080
	(0.053)	(0.053)	(0.053)	(0.053)
Variance (country)	0.113***	0.111***	0.112***	0.109***
	(0.033)	(0.033)	(0.033)	(0.033)
Constant	0.316***	0.305***	0.313***	0.296***
	(0.113)	(0.116)	(0.118)	(0.107)
Observations	25,769	25,769	25,769	25,769
Number of groups	17	17	17	17

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

Appendix for Chapter 3

Latin American Public Opinion Project Question Wording

Survey data this paper come from the Latin American Public Opinion Project's 2016/17 round of the Americas, and the Peru survey more specifically. See www.vanderbilt.edu/lapop/ for complete discussion of the survey project, including the full questionnaire, sample design, and information on survey methodology.

Variable	Question Wording	Notes
Climate Change Seriousness	**ENV2B**. If nothing is done to reduce climate change in the future, how serious of a problem do you think it will be for [country]? Very serious, Somewhat serious, A little serious, Not serious at all	For logistic regression analysis, variable is recoded so that 1 = Very Serious, 0 = not at all, a little, and somewhat serious.
Trade-Off between Economy and Environment, Categorical	**ENV1**. In your opinion, what should be given higher priority: protecting the environment, or promoting economic growth? Protecting the environment Promoting economic growth [Don't read] Both	
Trade-Off between Economy and Environment, Continuous	**ENV1c**. Some people believe that protecting the environment should be given priority over economic growth, while others believe that growing the economy should be prioritized over environmental protection. On a 1 to 7 scale where 1 means that the environment should be the highest priority, and 7 means the economic growth should be the highest priority, where would you place yourself? 1 = Environment is highest priority … 7 = Economic growth is highest priority	For analysis, variable is recoded so that 0 = economic growth and 6 = environmental protections. For the descriptive figure, the original scale is simply flipped to run from 1 = economic growth to 7 = environmental protections.
Most Important Local Environmental Problem	**ENV3PL.** From the following list of environmental problems, please tell me which is the most serious problem in your locality. None [Do not read] Air pollution Pollution of rivers and seas Floods Flash flooding Droughts	Only a total of 21 respondents indicate there is no environmental problem or specified a different environmental problem than listed. I exclude these 21 respondents from the analysis.

	Trash Deforestation Other [Do not read] (specify)	
Most Serious National Environmental Problem	**ENVP3N**. From this same list of environmental problems, please tell me which is the most serious for our country. Air pollution Pollution of rivers and seas Floods Flash flooding Droughts Trash Deforestation Other [Do not read] (specify)	Only 3 respondents specified a different environmental problem than listed. I exclude these 3 respondents from the analysis.
Urban	Census specified designation of the area's urban versus rural designation	1 = urban, 0 = rural
Region	Using the LAPOP designation regions, there are 6 distinct subnational regions of Peru. Sierra Norte, Sierra Sur, Sierra Centro, Selva, Lima Metro, Costa Sur and Costa Norte → The northern sierra, the southern sierra, the central sierra, the jungle, Lima metropolitan area, the southern coast, and the northern coast.	In all analysis, the Lima metro area serves as the reference category.
Education	Level of education - Recode of years of education to categories respondents on whether they completed some or no primary education, some secondary education, or some post-secondary education. The level of education reflects each country's education system.	0 = no or primary education, 1 = secondary education, 2 = post-secondary education, but in all models this is a series of dichotomous variables where no/primary education is the reference category.
Age	Categorical variable of age: 16/18-25, 26-35 36-45, 46-55, 56-65, 65+. The lowest age surveyed in a country reflects that country's voting age.	Like education, this is treated as a series of dichotomous variables with the youngest age group (16/18-25) is the reference category.
Wealth	Measured derived by LAPOP that captures the quintile of household wealth that a respondent falls in. See Córdova (2008) for a description of how principal components analysis is used to identify quintiles of wealth.	Rescaled to run from 0 (poorest quintile) to 1 (wealthiest quintile), with intermediate quintiles falling equidistant between.
Urban	Census specified designation of the area's urban versus rural designation	1 = urban, 0 = rural

| **Female** | Respondent's gender | 1= female, 0 = not female |

Focus Group Details

Two groups of four focus groups were conducted in urban and rural areas of Peru in October 2019. All eight groups were moderated by local moderators. The same two moderators (one female and one male) moderating all eight groups, with the female moderating female specific groups and the male moderator moderating the male groups.

Both groups followed the same protocol:

> Upon arrival, the moderator will present himself or herself and explain the mechanics of the focus group. After this, the moderator will go over the study participation sheet and will give the participants the opportunity to opt out of participating. The study participation sheet also describes the use of an audio recorder. The focus groups will only continue with those participants that have agreed to the conditions of the focus group. The moderator will lead the focus group discussion, and will follow the instructions within the brackets.
>
> Section I – INTRODUCTION BY THE MODERATOR
>
> INTRODUCTION: The purpose of this research is to find out more about how people think about the environment and climate change. During the discussion I would like you to share your honest opinions and thoughts, positive or negative. Everything that you say here will be kept confidential, and your names or any other identifying information will not be linked to any report coming from this research. You may refuse to participate in this study. Even if you choose to participate in the study, you may discontinue participation at any time without penalty or loss of participant benefits. The researcher will be joining us, but will not participate in the discussion.
>
> ORGANIZATION: Before beginning, I just want to go over three ground rules for discussion:
>
> - There is a limited amount of time, so I might have to interrupt the conversation from time to time to keep things moving.
> - There are no wrong answers to the questions. We are interested in your personal views. You can agree with other participants' opinions, but please do not feel as though you must agree with anyone else.
> - Please talk one at a time and please do not have side conversations. Are there any questions? Alright – let's begin.

First Set of Focus Groups (Vanderbilt University IRB #191731)

> These four groups were aimed at understanding whether men and women differently perceive the costs of combatting climate change. They were conducted on behalf of Sarah Bush and Amanda Clayton. The urban groups took place at a local classroom used for night classes and workshops. The rural groups were conducted in a library and cultural center for the surrounding community. The rural location was selected with the assistance of our local team. It was located approximately an hour and a half drive outside of Lima. The employment opportunities in the area are in transportation (e.g. trucking) and agriculture. For each set of groups,

participants were recruited face-to-face with flyers and encouraged to share the focus group opportunity with others (i.e. snowball recruitment). Participants received a gift card to a local set of stores that was valued at 100 soles (approximately $30 USD) as compensation. The average duration of these groups was an hour and fifteen minutes.

I only use the results of the focusing exercise for these groups, which was:

"Recently, climate change has been receiving a lot attention in the news and by politicians. Please take a few minutes to write down three things that come to mind when you think of climate change."

A total of 28 participants participated in the four groups, with 14 males and 14 females. The average age was 39. The average level of education in the rural focus groups was at least some secondary education, and the urban group average was post-secondary education.

Second Set of Focus Groups (Vanderbilt University IRB #191667)

I was the sole researcher responsible for coordinating these four groups. All four groups took place in Lima, either at a local classroom used for night classes and workshops or a rented co-working space. For each set of groups, participants were recruited face-to-face with flyers and encouraged to share the focus group opportunity with others (i.e. snowball recruitment). Participants received a gift card to a local set of stores that was valued at 70 soles (approximately $18 USD) as compensation. The average duration of these groups was 47 minutes.

A total of 24 participants participated in the four groups, with 16 females and 8 males. The average age was 35. The average level of education across the groups was, with 14 participants indicating some post-secondary education.

The pre-discussion questionnaire and question guide are below.

In what year were you born? _____

How many years of schooling have you completed? Circle the range:

1-4   5-8   9-12   12-15   15+

When you hear "environment," what three things come to mind? List them below.

```
┌─────────────────────────────────────────────────────┐
│                                                     │
│                                                     │
│                                                     │
│                                                     │
│                                                     │
└─────────────────────────────────────────────────────┘
```

Are there environmental issues that affect you or your family? If so, list them below.

```
┌─────────────────────────────────────────────────────┐
│                                                     │
│                                                     │
│                                                     │
│                                                     │
│                                                     │
└─────────────────────────────────────────────────────┘
```

Are there environmental issues that affect your community? If so, list them below.

```
┌─────────────────────────────────────────────────────┐
│                                                     │
│                                                     │
│                                                     │
│                                                     │
│                                                     │
└─────────────────────────────────────────────────────┘
```

Would you say that in the next 5 years, you or your household will be more affected, less affected, or about the same amount affected by environmental issues?

Circle one: MORE
                     LESS
                     ABOUT THE SAME

Would you say that in the next 5 years, you community will be more affected, less affected, or about the same amount affected by environmental issues?

Circle one: MORE
                     LESS
                     ABOUT THE SAME

Some people believe that we must prioritize the protection of the environment over economic growth, while others believe that economic growth must be the prioritized over the protection of the environment. What about you? Given the scale below, where 1 is placing all priority on environmental protections and 7 is placing all priority on economic growth, where would you put yourself?

1	2	3	4	5	6	7

Environment   Economic
is   growth is
priority   priority

<u>Focus Group Question Guide</u>

Now that everyone has finished their pre-discussion questionnaire, I would like to start today's conversation by talking about some of the answers you wrote down on the pre-discussion questionnaire. Let's start with the last question you answered, about prioritizing environmental protections or economic growth.

1) Let's go around and have everyone describe their answers. What number did you select, and what were you thinking of when you answered it?
    a. Probing: What sort of environmental protections were you thinking of?
    b. Probing: How were you thinking of economic growth?
    c. Probing: Why value one more over the other; sorts of benefits that exist?
2) It sounds like there is some [consensus/differences] in how we think about the environment. How do you think people in other parts of Peru think about the environment?
    a. What makes you say that?
    b. So, do you think others in [city] would answer the question in the same way?
3) Do you think some people are more affected by environmental issues than others?
    a. Can you describe some of the differences in people?
4) What do you know about how environmental issues are discussed in school?
    a. Do you know if children are learning about these sorts of issues in school now? Or, is it a topic that you remember covering in school?
5) Is the environment covered in the news here? Where do you learn about environmental issues or maybe potential solutions?
6) Who do you think should be responsible for implementing environmental protections?
    a. What makes you say that?
    b. Potential probe: what is/should be the role of politics or political leaders?

Full Model Results for Figures and Additional Specifications in Chapter 3

Table A3.1 Multinomial Logistic Regression Local Problem, See Figure 3.4, AmericasBarometer Peru 2017

	Air pollution	Pollution of rivers and seas	Floods	Flash flooding	Droughts	Deforestation
VARIABLES	(reference outcome = trash)					
Education, Secondary	-0.518**	0.120	-0.679**	-0.885**	0.330	0.462
	(0.226)	(0.308)	(0.330)	(0.345)	(0.347)	(0.335)
Education, Post-secondary	-0.540**	0.524*	-0.797**	-1.428***	0.217	0.960**
	(0.257)	(0.316)	(0.360)	(0.407)	(0.406)	(0.370)
Wealth Quintiles	0.090	0.044	-0.160*	0.054	0.044	-0.043
	(0.056)	(0.077)	(0.087)	(0.088)	(0.091)	(0.078)
Age, 26-35	0.437**	0.107	0.186	0.277	0.900**	0.277
	(0.200)	(0.223)	(0.307)	(0.278)	(0.357)	(0.224)
Age, 36-45	0.695***	-0.169	-0.261	-0.757**	1.308***	0.295
	(0.175)	(0.220)	(0.319)	(0.331)	(0.431)	(0.265)
Age, 46-55	0.919***	-0.012	-0.713**	-0.617*	0.961**	0.244
	(0.219)	(0.268)	(0.361)	(0.366)	(0.419)	(0.305)
Age, 56-65	1.101***	0.590**	-0.199	-0.151	2.247***	0.763**
	(0.234)	(0.296)	(0.428)	(0.447)	(0.428)	(0.372)
Age, 66+	0.828**	-0.002	0.401	0.322	2.783***	0.763
	(0.326)	(0.455)	(0.484)	(0.411)	(0.493)	(0.517)
Urban versus Rural	-0.232	-0.650***	-0.825***	-0.688**	-2.017***	-0.869***
	(0.212)	(0.217)	(0.285)	(0.327)	(0.322)	(0.265)
Female	-0.401***	-0.329**	-0.322	-0.042	-0.497**	-0.589***
	(0.149)	(0.141)	(0.224)	(0.162)	(0.235)	(0.203)
Region, Costa Norte	-0.518**	0.904**	1.964***	-0.472	1.679**	0.642
	(0.233)	(0.355)	(0.545)	(0.418)	(0.779)	(0.444)
Region, Costa Sur	-0.050	0.624	1.756***	0.561	2.237***	-2.239***
	(0.384)	(0.508)	(0.650)	(0.532)	(0.819)	(0.822)
Region, Selva	-0.552**	1.632***	3.063***	0.235	2.532***	3.112***
	(0.217)	(0.296)	(0.533)	(0.463)	(0.786)	(0.394)
Region, Sierra Centro	-0.056	1.324**	0.534	0.478	2.822***	1.416**
	(0.408)	(0.527)	(0.744)	(0.504)	(0.912)	(0.673)
Region, Sierra Norte	-0.053	1.432***	0.875	0.104	3.243***	1.240***
	(0.280)	(0.374)	(0.793)	(0.440)	(0.785)	(0.452)
Region, Sierra Sur	-0.188	1.105***	1.474**	0.032	2.966***	1.028**
	(0.250)	(0.334)	(0.591)	(0.467)	(0.769)	(0.450)
Constant	-0.158	-1.672***	-1.536*	-0.276	-4.165***	-2.737***
	(0.343)	(0.489)	(0.807)	(0.616)	(0.846)	(0.657)
Observations	2,528	2,528	2,528	2,528	2,528	2,528

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

Table A3.2 Multinomial Logistic Regression National Problem, See Figure 3.4, AmericasBarometer Peru 2017

VARIABLES	Pollution of rivers and seas	Floods	Flash flooding	Droughts	Trash	Deforestation
	(reference outcome = air pollution)					
Education, Secondary	0.372	-0.144	-0.174	-0.111	-0.713***	0.107
	(0.240)	(0.291)	(0.249)	(0.289)	(0.236)	(0.312)
Education, Post-secondary	0.638**	0.164	-0.560**	-0.350	-0.516*	0.754**
	(0.273)	(0.312)	(0.268)	(0.289)	(0.275)	(0.347)
Wealth Quintiles	0.147**	-0.037	0.168**	0.133	-0.031	0.129
	(0.057)	(0.088)	(0.069)	(0.088)	(0.076)	(0.080)
Age, 26-35	-0.032	-0.336	-0.107	0.038	-0.423	0.206
	(0.164)	(0.370)	(0.218)	(0.354)	(0.288)	(0.241)
Age, 36-45	0.176	0.418	-0.472*	0.195	-0.007	0.051
	(0.165)	(0.326)	(0.251)	(0.315)	(0.245)	(0.253)
Age, 46-55	0.035	-0.137	-0.397	0.641*	-0.266	-0.124
	(0.215)	(0.364)	(0.256)	(0.350)	(0.292)	(0.329)
Age, 56-65	-0.376	0.110	-0.003	0.772*	0.155	0.158
	(0.261)	(0.440)	(0.290)	(0.440)	(0.304)	(0.370)
Age, 66+	-0.488	-0.108	-0.253	0.696	-0.432	0.006
	(0.368)	(0.477)	(0.342)	(0.491)	(0.405)	(0.482)
Urban versus Rural	0.272**	-0.188	0.324*	0.080	0.341	-0.160
	(0.138)	(0.231)	(0.182)	(0.255)	(0.244)	(0.190)
Female	-0.043	0.326	0.571***	-0.046	0.115	-0.388*
	(0.153)	(0.245)	(0.158)	(0.259)	(0.186)	(0.200)
Region, Costa Norte	-0.432**	0.437	-0.562**	-0.214	-0.562*	-0.251
	(0.185)	(0.391)	(0.279)	(0.441)	(0.316)	(0.272)
Region, Costa Sur	-0.371	0.024	-0.402	0.247	-0.515	-0.985
	(0.306)	(0.459)	(0.303)	(0.511)	(0.336)	(0.662)
Region, Selva	-0.430**	0.783**	-0.620**	0.148	-0.937***	0.899***
	(0.189)	(0.331)	(0.244)	(0.368)	(0.313)	(0.283)
Region, Sierra Centro	-0.385	-0.590	-0.106	0.485	-0.890***	0.292
	(0.270)	(0.627)	(0.331)	(0.404)	(0.311)	(0.337)
Region, Sierra Norte	-0.607**	-0.494	-0.732**	0.839*	-0.930**	-0.180
	(0.306)	(0.519)	(0.329)	(0.440)	(0.390)	(0.364)
Region, Sierra Sur	-0.618***	-0.195	-0.699**	0.834**	-0.739*	-0.441
	(0.209)	(0.456)	(0.275)	(0.370)	(0.378)	(0.390)
Constant	-0.701**	-1.616***	-0.691	-2.513***	0.098	-1.665***
	(0.325)	(0.611)	(0.454)	(0.566)	(0.482)	(0.574)
Observations	2,537	2,537	2,537	2,537	2,537	2,537

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

Table A3.3 Regression Output for Trade-off Question on Local and National Problems, plus controls

VARIABLES	Trade-Off between Environment (high) and Economy (low)
NATIONAL (ref = air pollution)	
Water Pollution	0.300**
	(0.131)
Floods	-0.195
	(0.199)
Flash Floods	-0.344**
	(0.165)
Drought	0.157
	(0.242)
Trash	-0.071
	(0.182)
Deforestation	0.541***
	(0.181)
LOCAL (ref = trash)	
Air Pollution	0.166
	(0.126)
Water Pollution	0.070
	(0.149)
Floods	-0.204
	(0.221)
Flash Floods	-0.392*
	(0.202)
Drought	-0.109
	(0.182)
Deforestation	0.074
	(0.187)
Education, Secondary	0.656***
	(0.167)
Education, Post-secondary	1.061***
	(0.178)
Wealth Quintiles	0.036
	(0.040)
Age, 26-35	-0.162
	(0.129)
Age, 36-45	-0.394***
	(0.146)
Age, 46-55	-0.415***
	(0.153)
Age, 56-65	-0.243
	(0.209)
Age, 66+	-0.546**
	(0.261)
Urban versus Rural	-0.041
	(0.112)
Female	-0.043
	(0.101)

Region, Costa Norte	-0.037
	(0.169)
Region, Costa Sur	-0.262
	(0.233)
Region, Selva	-0.001
	(0.167)
Region, Sierra Centro	0.300
	(0.199)
Region, Sierra Norte	0.523***
	(0.168)
Region, Sierra Sur	0.661***
	(0.154)
Constant	2.473***
	(0.285)
Observations	2,503
R-squared	0.082

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

Table A3.4 Logistic Regression Output for Climate Change Seriousness on Local and National Environmental Problems, plus controls

VARIABLES	Climate Change Is Very Serious
NATIONAL (ref = air pollution)	
Water Pollution	0.079
	(0.159)
Floods	-0.360
	(0.234)
Flash Floods	-0.050
	(0.165)
Drought	0.215
	(0.257)
Trash	-0.277
	(0.195)
Deforestation	0.706***
	(0.251)
LOCAL (ref = trash)	
Air Pollution	0.264*
	(0.157)
Water Pollution	0.079
	(0.185)
Floods	0.168
	(0.211)
Flash Floods	-0.144
	(0.219)
Drought	-0.137
	(0.225)
Deforestation	0.519**
	(0.254)
Education, Secondary	0.565***
	(0.154)
Education, Post-secondary	1.089***
	(0.199)
Wealth Quintiles	0.027
	(0.044)
Age, 26-35	0.087
	(0.159)
Age, 36-45	0.216
	(0.181)
Age, 46-55	0.182
	(0.196)
Age, 56-65	0.323
	(0.224)
Age, 66+	-0.255
	(0.252)
Urban versus Rural	-0.041
	(0.127)
Woman	0.069

	(0.115)
Region, Costa Norte	0.064
	(0.210)
Region, Costa Sur	0.031
	(0.222)
Region, Selva	-0.252
	(0.177)
Region, Sierra Centro	-0.084
	(0.247)
Region, Sierra Norte	-0.039
	(0.195)
Region, Sierra Sur	-0.089
	(0.216)
Constant	0.243
	(0.300)
Observations	2,497

Standard errors in parentheses

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

Appendix for Chapter 4

Latin American Public Opinion Project Question Wording

Survey data this paper come from several waves of the Latin American Public Opinion Project's AmericasBarometer survey. See www.vanderbilt.edu/lapop/ for complete discussion of the survey project, including the full questionnaire, sample design, and information on survey methodology. Question wording and coding is presented in the order in which they appear in the chapter.

Question Wording

Variable	Question Wording	Notes
State Should Own Important Industries	**ROS1**. The (country) government, instead of the private sector, should own the most important enterprises and industries of the country. How much do you agree or disagree with this statement? 1- Strongly Disagree…7-Strongly Agree	Variable is recoded so that responses 5-7 constitute agreement with the statement. Figure 1 shows the percentage of people in the 2016/17 AmericasBarometer that agree with this statement in Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Bolivia, Peru, Paraguay, Chile, Uruguay, Brazil, Venezuela, Argentina, and the Dominican Republic.
Creating Jobs: Government Is Better than Private Sector	**ROS3**. The [nationality] government, more than the private sector, should be primarily responsible for creating jobs. 1- Strongly Disagree…7-Strongly Agree	Variable is recoded so that responses 5-7 constitute agreement with the statement. Figure 1 shows the percentage of people in the 2012 AmericasBarometer that agree with this statement in Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Bolivia, Peru, Paraguay, Chile, Uruguay, Brazil, Venezuela, Argentina, and the Dominican Republic.
Government Should Implement Policies to Reduce Income Inequality	**ROS4**. The [nationality] government should implement strong policies to reduce income inequality between the rich and the poor. To what extent do you agree or disagree with this statement? 1- Strongly Disagree…7-Strongly Agree	Variable is recoded so that responses 5-7 constitute agreement with the statement. Figure 1 shows the percentage of people in the 2018/19 AmericasBarometer that agree with this statement in Mexico, Guatemala, El Salvador, Honduras, Costa Rica, Panama, Colombia, Ecuador, Bolivia, Peru, Paraguay, Chile, Uruguay, Brazil, Argentina, and the Dominican Republic.

Pensions: Government is Better at Providing than Private Sector	**ROS5.** The [nationality] government, rather than the private sector, should be primarily responsible for providing pensions. To what extent do you agree or disagree with this statement?	Variable is recoded so that responses 5-7 constitute agreement with the statement. Figure 1 shows the percentage of people in the 2010 AmericasBarometer that agree with this statement in Mexico, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Bolivia, Peru, Paraguay, Chile, Uruguay, Brazil, Venezuela, Argentina, and the Dominican Republic.
Ideology/Left-Right Self-Placement	**L1.** Now, to change the subject... On this card there is a 1-10 scale that goes from left to right. The number one means left and 10 means right. Nowadays, when we speak of political leanings, we talk of those on the left and those on the right. In other words, some people sympathize more with the left and others with the right. According to the meaning that the terms "left" and "right" have for you, and thinking of your own political leanings, where would you place yourself on this scale? Tell me the number.	Responses 1-4 are coded as left self-placement, 5 and 6 are moderate or centrist placement, and responses 7 through 10 are coded as right. Don't know and no answer responses are then coded into a fourth category. When included in analysis the variable is treated as a series of dichotomous variables where left self-placement is the reference category.
Perceptions of Capacity	Rescaled principal component analysis of next four variables; prediction based on analysis described in next section of Appendix.	Rescaled to run from 0 to 1.
Satisfaction with Roads	**SD2NEW2.** And thinking about this city/area where you live, are you very satisfied, satisfied, dissatisfied, or very dissatisfied with the condition of the streets, roads, and highways? Very satisfied, Satisfied, Dissatisfied, or Very Dissatisfied	Reponses are reverse coded to run from 0 = very dissatisfied to 3=very satisfied.
Satisfaction with Public Schools	**SD3NEW2.** And with the quality of public schools? Are you… Very Satisfied, Satisfied, Dissatisfied, or Very Dissatisfied	Reponses are reverse coded to run from 0 = very dissatisfied to 3=very satisfied.
Satisfaction with Public Health Institutions	And with the quality of public medical and health services? Are you… Very Satisfied, Satisfied, Dissatisfied, or Very Dissatisfied	Reponses are reverse coded to run from 0 = very dissatisfied to 3=very satisfied.
Police Response Time	**INFRAX.** Suppose someone enters your home to burglarize it and you call the police. How	Respondents who say more than 3 hours or that police would not show/there are no

	long do you think it would take the police to arrive at your house on a typical day around noon? Less than 10 minutes, Between 10 and 30 minutes, More than 30 minutes and up to an hour, More than an hour and up to three hours, and More than three hours, or [NOT READ] There are no police/they would never arrive	police are combined into one category. Then the variable is recoded to run from 0 = slowest response time (more than 3 hours) and 4 = fastest response time (less than 10 minutes).
Perceptions of Quality	Rescaled principal component analysis of next three variables; prediction based on analysis described in next section of Appendix.	Rescaled to run from 0 to 1.
Trust in Local Government	**B32.** To what extent do you trust the local or municipal government? 1= Not at all…7 = A lot	Left on original scale.
Perceptions of Corruption	Measure is a combination of two questions that were randomly assigned to survey respondents, each receiving only one question. **EXC7.** Taking into account your own experience or what you have heard, corruption among public officials is... Very Widespread, Somewhat Widespread, Not Very Widespread, Not at All Widespread **EXC7NEW.** Thinking of politicians in [country], how many do you believe are involved in corruption? None, Less than Half of Them, Half of Them, More than Half of Them, All	The variables are combined into one new variable in the following way where lower values are worse perceptions of corruption: 0: Very and somewhat widespread (EXC7) and More than Half and All (EXC7NEW) 1: Half of Them (EXC7NEW) 2: Not Widespread at All and Not very Widespread (EXC7) and None and Less than Half (EXC7NEW)
Asked for Bribe by Local Official	**EXC11.** In the last twelve months, to process any kind of document in your municipal government, like a permit for example, did you have to pay any money above that required by law? Yes, No	Reverse coded so that the high value is not experiencing being asked for a bribe.
Prefer the State Implement Environmental Policy	**ENV1CALT.** Imagine that the national government has two options to implement environmental protections: On the one hand, you can give resources to your municipality to	For all of the analyses, I am looking to predict preferences for the state (1) versus non-state actors (0).

	implement that protection, on the other hand, you can give funds to other groups, like non-governmental organization or community organizations that can decide how to implement and administer protection. The government can only use one of these options. Which would you prefer? Give resources to municipal/local government/municipality Give resources to NGO's/non-governmental or community organizations	
Education	Level of education - Recode of years of education to categories respondents on whether they completed some or no primary education, some secondary education, or some post-secondary education. The level of education reflects each country's education system.	0 = no education, 1= primary education, 2 = secondary education, 3 = post-secondary education.
Age	Categorical variable of age: 16/18-25, 26-35 36-45, 46-55, 56-65, 65+. The lowest age surveyed in a country reflects that country's voting age.	This is treated as a series of dichotomous variables with the youngest age group (16/18-25) serving as the reference category.
Wealth	Measured derived by LAPOP that captures the quintile of household wealth that a respondent falls in. See Córdova (2008) for a description of how principal components analysis is used to identify quintiles of wealth.	Rescaled to run from 0 (poorest quintile) to 1 (wealthiest quintile), with intermediate quintiles falling equidistant between.
Urban	Census specified designation of the area's urban versus rural designation	1 = urban, 0 = rural
Female	Respondent's gender	1= female, 0 = not female

Figure A4.1. Role of State Attitudes across Latin America, various waves of AmericasBarometer

The State Should Own
Important Industries, 2016/17

Creating Jobs: Government Better
than Private Sector, 2012

Government Should Implement Policies
to Reduce Income Inequality

Pensions: Government is Better at
Providing than Private Sector, 2010

95 % Confidence Interval
(with Design-Effects)
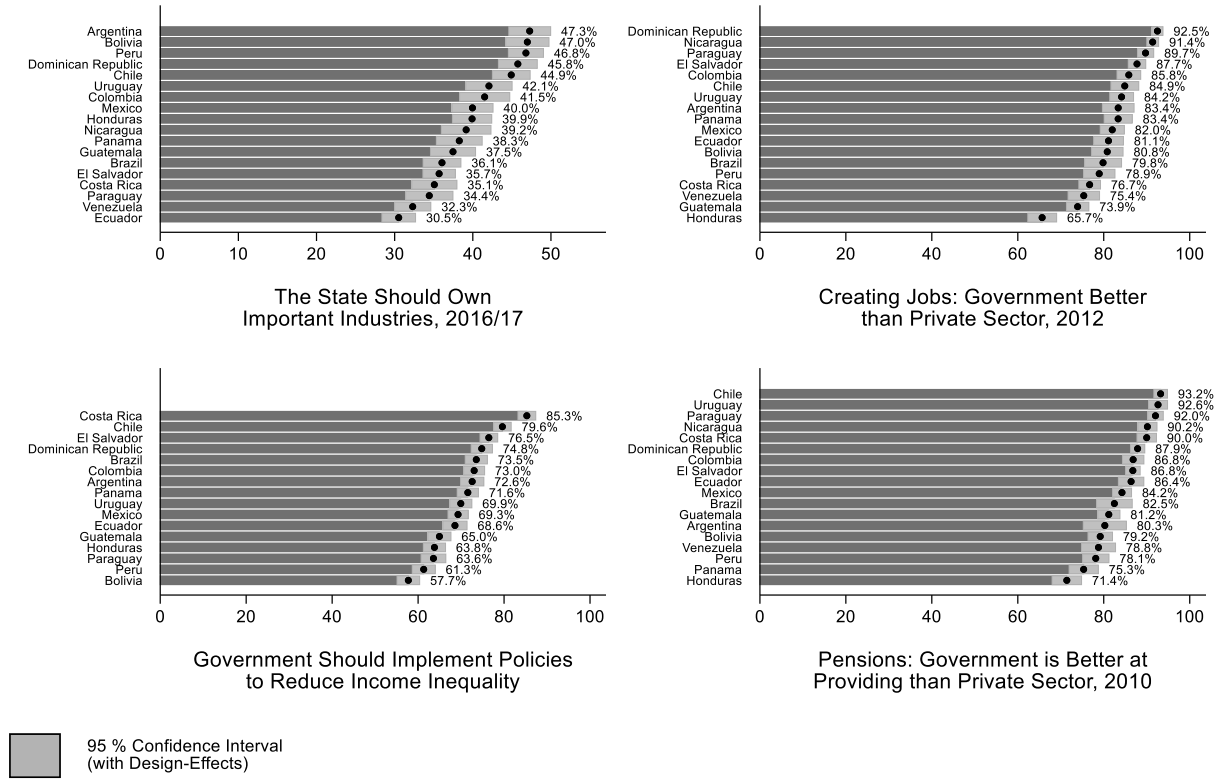
Source: © AmericasBarometer, LAPOP

Note: This figure shows the percentage of people who respond answers 5 through 7 on disagree-agree scale for each of the various role of state questions shown in Figure 4.1 in Chapter 4. Question wording is found in the Question Wording Table above.

Principal Components Analysis

In this section, I discuss the principal components analysis used in Chapter 4.

Perceptions of Capacity

Police response time, satisfaction with roads, satisfaction with public schools, and satisfaction with public health institutions all load onto a single component that explains 43.3% of the variance among the variables, with an eigenvalue = 1.73. Each variable then loads onto that single dimension in different ways: police response time with the lowest correlation at 0.277, then road satisfaction at 0.526, satisfaction with public health institutions at 0.552, and satisfaction with public schools at 0.585. I then use the predict function to predict a perception of capacity score for each individual based on the principal component analysis.

Perceptions of Quality

Trust in local government, perceptions of corruption among officials, and being asked to pay a bribe by local officials all load onto a single component that explains 38.9% of the variance among the variables, with an eigenvalue = 1.16. Each variable then loads onto that single dimension in different ways: being asked to pay a bribe has the lowest correlation at 0.466, then perceptions of corruption at 0.583, and finally, trust in local government at 0.666. I then use the predict function to predict a perception of quality score for each individual based on the principal component analysis.

Country Specific Analysis

PCA Results of Capacity by Country

Country	Eigenvalue	Police Response Time	Satisfaction with Roads	Satisfaction with Schools	Satisfaction with Public Health
Mexico	1.73092	0.2914	0.544	0.57	0.5425
Guatemala	1.63398	0.2685	0.4757	0.6061	0.5782
Peru	1.70155	0.3303	0.5076	0.568	0.5572
Paraguay	1.78354	0.2278	0.5476	0.5925	0.5452

PCA Results of Quality by Country

Country	Eigenvalue	Trust in Local Government	Perceptions of Corruption among Officials	Asked for a Bribe by Local Official
Mexico	1.206	0.6555	0.5553	0.5119
Guatemala	1.17635	0.6435	0.6195	0.4496
Peru	1.12579	0.6602	0.4779	0.5794
Paraguay	1.12919	0.7047	0.5633	0.4314

Full Model Results for Figures and Additional Specifications in Chapter 4

Table A4.1. Logistic Regression Output, Baseline Model (See Figure 4.7 in Chapter 4)

VARIABLES	Prefer the State (log-odds ratio)
Ideology, Moderate	-0.062
	(0.072)
Ideology, Right	0.057
	(0.071)
Ideology, DK/DA	-0.119
	(0.115)
Urban/Rural	-0.188***
	(0.071)
Age, 26-35	0.090
	(0.086)
Age, 36-45	0.252***
	(0.088)
Age, 46-55	0.221**
	(0.097)
Age, 56-65	0.322***
	(0.107)
Age, 66+	0.623***
	(0.115)
Wealth Quintiles	-0.233***
	(0.087)
Education	-0.515***
	(0.137)
Female	-0.138**
	(0.057)
Country, Guatemala	0.038
	(0.097)
Country, Peru	0.210**
	(0.082)
Country, Paraguay	0.579***
	(0.088)
Constant	-0.160
	(0.139)
Observations	5,669

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

Table A4.2. Logistic Regression Output for Pooled Sample and Individual Countries (see Figure 4.8 in Chapter 4)

VARIABLES	Prefer the State (Four countries)	Prefer the State (Mexico)	Prefer the State (Guatemala)	Prefer the State (Peru)	Prefer the State (Paraguay)
Perceptions of Quality	1.525***	0.704**	1.743***	1.841***	1.755***
	(0.175)	(0.332)	(0.341)	(0.413)	(0.336)
Perceptions of Capacity	0.819***	0.541	0.825**	0.520	0.961***
	(0.186)	(0.400)	(0.407)	(0.370)	(0.340)
Ideology, Moderate	-0.042	0.100	0.141	-0.170	-0.126
	(0.076)	(0.154)	(0.158)	(0.151)	(0.160)
Ideology, Right	-0.014	0.037	0.156	-0.080	-0.074
	(0.076)	(0.165)	(0.153)	(0.158)	(0.146)
Ideology, DK/DA	-0.021	0.029	0.095	0.076	-0.184
	(0.139)	(0.257)	(0.264)	(0.343)	(0.256)
Urban/Rural	-0.121	-0.039	0.363**	-0.660***	-0.140
	(0.075)	(0.143)	(0.165)	(0.159)	(0.127)
Age, 26-35	0.155*	0.099	0.159	0.193	0.157
	(0.089)	(0.181)	(0.175)	(0.147)	(0.207)
Age, 36-45	0.315***	0.145	0.080	0.767***	0.135
	(0.093)	(0.239)	(0.182)	(0.181)	(0.174)
Age, 46-55	0.349***	0.200	0.105	1.015***	0.031
	(0.105)	(0.200)	(0.220)	(0.211)	(0.220)
Age, 56-65	0.398***	0.582**	0.264	0.589***	0.125
	(0.115)	(0.226)	(0.229)	(0.224)	(0.247)
Age, 66+	0.778***	0.996***	0.577**	1.236***	0.230
	(0.127)	(0.254)	(0.237)	(0.255)	(0.249)
Wealth Quintiles	-0.193**	-0.184	0.075	-0.271	-0.293
	(0.093)	(0.175)	(0.203)	(0.175)	(0.184)
Education	-0.263*	-0.324	-0.565*	0.453	-0.774**
	(0.154)	(0.310)	(0.333)	(0.315)	(0.324)
Female	-0.158***	-0.427***	0.046	-0.160	-0.142
	(0.060)	(0.119)	(0.128)	(0.122)	(0.120)
Country, Guatemala	0.091				
	(0.099)				
Country, Peru	0.335***				
	(0.089)				
Country, Paraguay	0.569***				
	(0.091)				
Constant	-1.756***	-1.071**	-2.126***	-1.741***	-0.833**
	(0.212)	(0.427)	(0.387)	(0.429)	(0.355)
Observations	5,119	1,262	1,291	1,306	1,260

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

Interaction Model Results

Table A4.3 Logistic Regression Output for Interaction between Quality and Capacity (See Table 4.1 in Chapter 4)

VARIABLES	Prefer the State
Perceptions of Quality	0.932**
	(0.435)
Perceptions of Capacity	0.096
	(0.529)
Quality*Capacity	1.238
	(0.822)
Ideology, Moderate	-0.041
	(0.076)
Ideology, Right	-0.015
	(0.076)
Ideology, DK/DA	-0.024
	(0.139)
Urban/Rural	-0.123
	(0.075)
Age, 26-35	0.153*
	(0.089)
Age, 36-45	0.312***
	(0.093)
Age, 46-55	0.348***
	(0.105)
Age, 56-65	0.397***
	(0.116)
Age, 66+	0.776***
	(0.127)
Wealth Quintiles	-0.191**
	(0.093)
Education	-0.262*
	(0.154)
Female	-0.158***
	(0.060)
Country, Guatemala	0.092
	(0.100)
Country, Peru	0.334***
	(0.089)
Country, Paraguay	0.565***
	(0.091)
Constant	-1.423***
	(0.316)
Observations	5,119

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

Additional Information and Robustness Checks

Table A4.4 shows the output for logistic regression of preferences for the state on the full set of variables that make up the baseline model plus the individual variables that are used to create the measures of capacity and quality. Table A4.6 presents multilevel model specifications.

Table A4.4. Logistic Regression Results for Quality and Capacity, non-Principal Components Analysis

VARIABLES	Prefer the State
Police Response Time	0.041
	(0.112)
Satisfaction with Roads	0.005***
	(0.001)
Satisfaction with Public Medical and Health Services	0.002
	(0.001)
Satisfaction with Public Schools	-0.000
	(0.001)
Trust in Local Government	0.172***
	(0.020)
Perception of Corruption among Politicians	0.147***
	(0.038)
Asked for Bribe from Municipal Government	0.020
	(0.126)
Ideology, Moderate	-0.078
	(0.077)
Ideology, Right	-0.050
	(0.077)
Ideology, DK/DA	-0.024
	(0.140)
Urban/Rural	-0.118
	(0.075)
Age, 26-35	0.165*
	(0.090)
Age, 36-45	0.330***
	(0.094)
Age, 46-55	0.360***
	(0.106)
Age, 56-65	0.411***
	(0.117)
Age, 66+	0.768***
	(0.129)
Wealth Quintiles	-0.196**
	(0.093)
Education	-0.256
	(0.156)
Female	-0.141**
	(0.060)
Country, Guatemala	0.130
	(0.098)

Country, Peru	0.372***
	(0.089)
Country, Paraguay	0.588***
	(0.091)
Constant	-1.589***
	(0.220)
Observations	5,119

Table A4.5 shows the output for logistic regression of preferences for the state on the full set of variables that make up the baseline model plus the measures of capacity and quality. As I note in relation to Figure 4.5 in Chapter 4, there is some non-linearity in the effect of quality. Here are the changes in predicted probability of preferring the state when I allow for the effect of quality to increase as quality increases, as well as the full output in Table A4.5.

Figure A4.2 Non-linear Relationship Between Quality and the Probability of Selecting the State
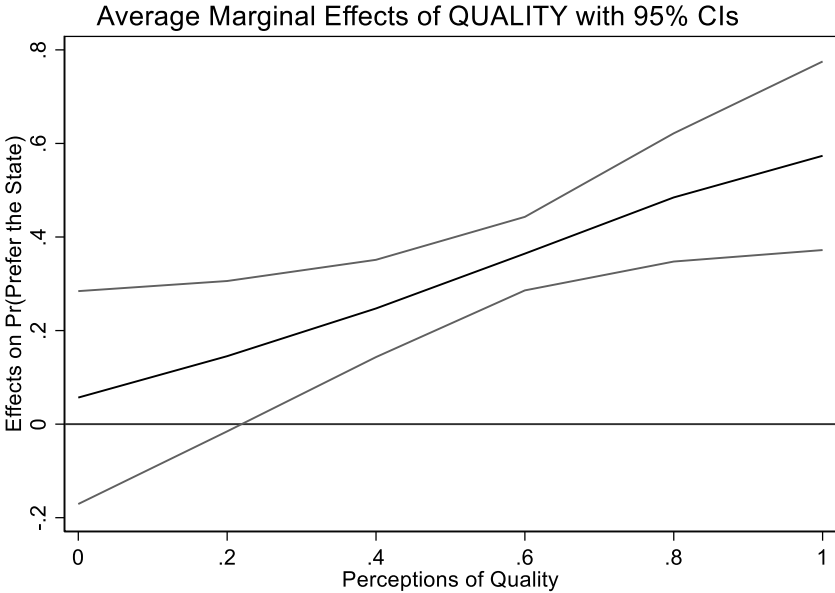

Average Marginal Effects of QUALITY with 95% CIs

Table A4.5. Non-Linearity of Quality, Logistic Regression Results

VARIABLES	Prefer the State
Perceptions of Quality	0.296
	(0.624)
Quality*Quality	1.074**
	(0.519)
Perceptions of Capacity	0.818***
	(0.186)
Ideology, Moderate	-0.042
	(0.076)
Ideology, Right	-0.020
	(0.076)
Ideology, DK/DA	-0.026
	(0.139)
Urban/Rural	-0.120
	(0.075)
Age, 26-35	0.151*
	(0.089)
Age, 36-45	0.312***
	(0.093)
Age, 46-55	0.347***
	(0.105)
Age, 56-65	0.395***
	(0.116)
Age, 66+	0.777***
	(0.127)
Wealth Quintiles	-0.187**
	(0.093)
Education	-0.257*
	(0.155)
Female	-0.157***
	(0.060)
Country, Guatemala	0.092
	(0.100)
Country, Peru	0.340***
	(0.089)
Country, Paraguay	0.567***
	(0.091)
Constant	-1.450***
	(0.253)
Observations	5,119

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

Table A4.6 Multilevel Model Logistic Regression Output, robustness check of model in paper

VARIABLES	Prefer the State	Prefer the State	Prefer the State
Perceptions of Quality		1.520***	0.920**
		(0.252)	(0.466)
Perceptions of Capacity		0.826***	0.094
		(0.097)	(0.348)
Quality*Capacity			1.255***
			(0.480)
Ideology, Moderate	-0.063	-0.043	-0.042
	(0.096)	(0.071)	(0.072)
Ideology, Right	0.057	-0.014	-0.015
	(0.054)	(0.056)	(0.056)
Ideology, DK/DA	-0.121	-0.024	-0.027
	(0.124)	(0.074)	(0.075)
Urban/Rural	-0.191	-0.125	-0.127
	(0.224)	(0.210)	(0.210)
Age, 26-35	0.090**	0.155***	0.153***
	(0.037)	(0.022)	(0.023)
Age, 36-45	0.252	0.316*	0.314*
	(0.158)	(0.173)	(0.173)
Age, 46-55	0.220	0.348	0.346
	(0.215)	(0.228)	(0.228)
Age, 56-65	0.323**	0.400***	0.399***
	(0.128)	(0.114)	(0.115)
Age, 66+	0.623***	0.780***	0.778***
	(0.221)	(0.243)	(0.243)
Wealth Quintiles	-0.234**	-0.196**	-0.194**
	(0.096)	(0.084)	(0.084)
Education	-0.511**	-0.254	-0.252
	(0.229)	(0.289)	(0.291)
Female	-0.138	-0.158*	-0.157*
	(0.109)	(0.093)	(0.092)
Variance (country)	0.049	0.045**	0.045**
	(0.031)	(0.023)	(0.022)
Constant	0.047	-1.510***	-1.173***
	(0.347)	(0.346)	(0.385)
Observations	5,669	5,119	5,119
Number of groups	4	4	4

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

Table A4.7. Logistic Regression Output for Models in Paper, without country fixed effects

VARIABLES	Prefer the State	Prefer the State	Prefer the State
Perceptions of Quality		1.469***	0.765*
		(0.171)	(0.429)
Perceptions of Capacity		0.920***	0.060
		(0.182)	(0.528)
Quality*Capacity			1.468*
			(0.820)
Ideology, Moderate	-0.080	-0.061	-0.059
	(0.072)	(0.076)	(0.076)
Ideology, Right	0.056	-0.018	-0.019
	(0.071)	(0.076)	(0.076)
Ideology, DK/DA	-0.144	-0.061	-0.063
	(0.113)	(0.137)	(0.136)
Urban/Rural	-0.242***	-0.176**	-0.177**
	(0.070)	(0.074)	(0.074)
Age, 26-35	0.086	0.152*	0.149*
	(0.085)	(0.089)	(0.089)
Age, 36-45	0.259***	0.332***	0.329***
	(0.086)	(0.091)	(0.091)
Age, 46-55	0.207**	0.333***	0.331***
	(0.095)	(0.104)	(0.104)
Age, 56-65	0.343***	0.422***	0.420***
	(0.103)	(0.113)	(0.113)
Age, 66+	0.637***	0.803***	0.801***
	(0.113)	(0.127)	(0.127)
Wealth Quintiles	-0.253***	-0.229**	-0.225**
	(0.089)	(0.094)	(0.094)
Education	-0.440***	-0.138	-0.137
	(0.137)	(0.153)	(0.153)
Female	-0.135**	-0.152**	-0.152**
	(0.056)	(0.059)	(0.059)
Constant	0.056	-1.542***	-1.146***
	(0.121)	(0.191)	(0.297)
Observations	5,669	5,119	5,119

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