

“They have good devices”: trust, mining, and the microsociology of environmental decision-making



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ARTICLE INFO

Article history:

Received 11 September 2013

Received in revised form

16 April 2014

Accepted 17 April 2014

Available online 2 May 2014

Keywords:

Trust
Gold mining
Guatemala
Environmental conflicts
New extractivism
Self-efficacy

ABSTRACT

Since the 1990s, transnational mining firms have increasingly sought new deposits in the developing world. This shift in global patterns of mineral activity has led to contestation by mining host community residents and their activist allies. A swell of recent literature in the social sciences explores this phenomenon, largely accepting conventional wisdom about the causal forces behind individuals' choices to contest mining. This article examines individual decision-making around mineral conflicts in an effort to bring the microsocial into focus. Trust is an essential and largely ignored dimension of mining conflicts. We argue that two types of trust—institutional and relational trust—help explain how individuals form preferences about mining in their territory. We further argue that individuals' sense of self-efficacy underlies their decisions about whom to trust or distrust. We also seek to deepen the social theorization of trust by challenging the common binary of affective and cognitive trust. To make this argument we draw from a mixed-methods study of responses to gold mining in Guatemala.

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1. Introduction

Since the mid-1990s, mineral investment has moved from the traditional mining economies (e.g., the United States, Canada, Australia) into countries across the developing world with little previous mining experience and little capacity to administer mining. Thus, mining investment grew in Latin America by 300 percent over the past decade (Dougherty, 2011). Other developing regions, such as sub-Saharan Africa, Southeast Asia, the Pacific Islands, the Indian subcontinent and parts of Central Asia have also seen increases in multi-national mining activity (Bridge, 2004).

Four principal factors produced this shift: exhaustion of 'easy' reserves in traditional mining countries, increased demand from emerging economies for industrial metals, technological advances in extraction and processing which allow for lower-grade deposits to be profitably mined, and liberal foreign direct investment regimes in many developing nations (Bebbington, 2009).

Concomitantly, conflicts between host communities and mining companies have increased (Özkaynak et al., 2012). Given these recent trends, this article examines the microsociology of decision-

making about mining. We argue that two kinds of trust—institutional and relational trust—are instrumental in understanding how individuals in agrarian mining host communities form preferences about mining. We further argue that individuals' sense of self-efficacy underlies their decisions about whom to trust or distrust.

We use interview and survey data from four Guatemalan municipalities hosting mining activity. In Guatemala, the number of exploration concessions granted yearly has increased by 1000% since 1997, owing to concerted state efforts to court mineral investment following the 1996 Peace Accords. This has generated anti-mining social movements and frequent violent confrontations between mining's opponents and supporters. Goldcorp's Marlin Mine is in the rugged, indigenous highlands of the Department of San Marcos. This mineralization was first explored in the late 1990s and passed through the hands of several companies until Glamis Gold brought it online in 2005. Guatemala's second gold mine is Cerro Blanco in Asunción Mita, Jutiapa, a lowland, largely mestizo municipality on Guatemala's eastern border. Cerro Blanco was discovered in 1997, and Glamis Gold acquired the rights in 1998. In November 2006 Glamis merged with Goldcorp. While Marlin has long been a global symbol indigenous resistance to transnational mining, until very recently, Cerro Blanco was not locally controversial.

As mineral conflicts in Guatemala have become central to public discourse over the last decade, many assume that host community

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residents allow community leaders or charismatic outsiders to sway their thinking. This perspective often originates from a cultural critique of peasants as irrational, given their minimal formal education. Others attribute their perceived tendency to be manipulated to peasants' indigenous roots, suggesting that in Mayan culture the *cacique* makes decisions for the community. Anti-mining activists and many academics assume that indigenous identity produces uniform thinking. In contrast to these assumptions, however, host community residents contend with contradictory scientific truths regarding the opportunities and threats of mining. Interview participant doña Élide bequeathed us the titular quote, “they have good devices.” Referring to the equipment at the mine site, she mobilized this idea to justify her faith in the company. This statement embodies a key part of our argument—trust in technological sophistication is related to trust in authority, which in turn is related to mining support.

This article engages these discourses, by analyzing unique quantitative and qualitative data which show how self-efficacy emerges from the obfuscating information politics of mineral conflicts. We also illustrate how self-efficacy and trust interact. We highlight how certain residents, when confronting mining in their territories, engage in a process of grappling, winnowing, and coming to terms, a process laden with logic and emotion. Other residents react distinctly, ceding their trust to abstract institutions of authority—faith, expertise, technology and the state. Self-efficacy helps explain the difference. We argue that when individuals believe in their own capacity they tend to grapple, and those that grapple are more likely to critique mining; alternately, those that lack self-efficacy tend to trust in institutions and to support mining.

2. Trust, efficacy, and the new extractivism

As mining expands and transnational activist networks mobilize support for local anti-mining movements, the contestation around the impacts of mining has become prominent within public discourse. An upsurge of scholarship has followed these shifts. Principal themes in this literature include socio-environmental impacts (e.g., [Bebbington et al., 2008a](#)), legal and judicial processes and indigenous rights (e.g., [Sieder, 2010](#)), firm–community relations (e.g., [Gordon and Webber, 2008](#)), restructuring in global mineral industries (e.g., [Dougherty, 2011](#)), social movements (e.g., [Bebbington et al., 2008b](#)), corporate social responsibility (e.g., [Haalboom, 2012](#)), land tenure (e.g., [Dougherty and Olsen, 2014](#)), social capital (e.g., [Bury, 2004](#)), and community development (e.g., [Kemp, 2010](#)). Other recent work interrogates the argument that “new extractivism” represents something qualitatively new (e.g., [Veltmeyer, 2013](#)).

This scholarship also overlaps with the resource curse literature (e.g., [Humphreys et al., 2007](#)) and literature in management centering on mining, sustainability and corporate social responsibility ([Hutton and Olsen, 2014](#)). Research on the new extractivism distinguishes itself with its critical nature-society approach. It takes new extraction as a function of the neo-liberalization of nature and draws theoretically from David [Harvey's \(2003\)](#) notion of capital accumulation by territorial dispossession ([Perreault, 2012](#)).

This scholarship often suggests agrarian host communities protest mining because it 1) threatens peasants' sources of livelihoods or stocks of natural resources (e.g., [Bebbington and Williams, 2008](#)); 2) threatens “traditional” modes of social relations (e.g., [Taylor, 2011](#)), 3) threatens locals' sense of territorial sovereignty or right to territorial self-determination (e.g., [Bebbington et al., 2008a](#)); or 4) is incompatible with smallholder farmers' or indigenous groups' inherent valuation of nature (e.g., [De la Cadena,](#)

[2010](#)). The ecological distribution conflict paradigm hybridizes these motivations (e.g., [Muradian et al., 2003](#)). These phenomena are important factors, yet macro-structural explanations—interpretations in which large social institutions move as coherent units—“may not tell the whole story” ([Horowitz, 2009: 250](#)). Social-psychological and affective dimensions are often overlooked. Further, this literature pays insufficient attention to mining supporters. This creates a tendency to assume uniform opposition to mining in contentious communities, which deprives host community residents of their complexity as decision-makers and brackets away much of the microsociology of mineral conflicts. In taking up the intellectual, emotional and profoundly social decision-making processes of host community residents, we echo Brian [Wynne's \(1992: 283\)](#) effort to unravel “simple notions of an unreflexive traditional lay culture.”

A growing literature moves beyond conventional macro-causal arguments, recognizing the heterogeneity of local perspectives and exploring the micro-interactionist aspects of environmental decision-making. This literature draws from emotional geography and micropolitical ecology, which prioritizes, “underlying or tangentially related tensions within societies that figure, often invisibly, in resource-related conflicts” ([Horowitz, 2009: 249](#)). [Hurley and Ari \(2011\)](#) argue that the literature overlooks how competing rural capitalisms drive conflicts around diverse local political-economic interests. [Horowitz \(2009\)](#) argues that conflicts ostensibly about resource scarcity are, in part, about political legitimacy. Other work considers the gendered and emotional-geographic dimensions of mining conflicts (e.g., [Ahmad and Lahiri-Dutt, 2006; Sultana, 2011](#)). This literature works toward integrating micro and macro analyses. [Hurley and Ari \(2011: 1394\)](#), for example, advocate for “excavating the complex ways that micropolitical patterns articulate with wider political economic processes.”

We build on these efforts to integrate the micropolitical and acknowledge local heterogeneity by examining the voices of mining supporters, critics, and individuals who articulate ambiguity. We unpack individual and microsocial decision-making and deepen the story of resistance to mining. Much of the literature on the new extraction treats mining opposition as the product of monolithic social groups acting in concert, while the emergent micropolitical ecology work seeks to characterize responses to mining as unique on the individual level but also profoundly influenced by macro-social factors. Both trust and self-efficacy represent this tension in which unique, individualized perspectives are conditioned by social forces. An individual's decision to trust depends on personal experience, yet trust is social because it depends on reciprocity, on the collective. Similarly self-efficacy varies individually and is a function of past experiences of success in achieving particular tasks. Yet self-efficacy is conditioned by the content of social interactions. We have elected to focus on these concepts because trust and self-efficacy represent this tension central to micropolitical ecology. We briefly review these concepts below.

2.1. Social theory of trust

Sociologists have defined trust variously. We draw from multiple definitions here. [Barber \(1983\)](#) views trust-as-expectation. One trusts because one has a reasonable set of expectations regarding the actions of another based on experience and norms. With this view, the outcome of failed trust is disappointment. [Luhmann \(2000 \[1988\]\)](#) defines trust as a solution for problems of risk. Living in a complex world, we trust because we cannot feasibly calculate risks in every occasion in which we face uncertainty. [Mayer, Davis and Schoorman \(1995\)](#), define trust as a willingness to

be vulnerable. This definition highlights the power imbalances inherent in truster-trustee relationships.

Lewis and Weigert (1985) distinguish between emotional and cognitive trust types, this typology has remained central to trust theory for thirty years. They caution that these are continua, not a dichotomy, and all trust relations have cognitive and emotional dimensions. Still, they argue that emotional trust dominates in interpersonal relations where trust is reciprocal and cognitive trust dominates in “public trust,” trust in abstract and/or spatially distant functions of society that do not reciprocate (e.g., currency, police). Much of the literature that has followed has reproduced variations on this typology (see Fig. 1). Rousseau et al. (1998) distinguish between calculus-based and relational trusts. McAllister (1995) refers to cognition-based and affect-based trust. Jin (2013) discusses social and governmental trust.

Here, we use the terms “relational trust” and “institutional trust” to characterize the patterns we observe. Relational trust is exercised when individuals feel strongly bound to friends, family, and neighbors with whom they share backgrounds, experiences, and life-stations. Relational trust has a local scalar character. Relational trust is highly affective because the truster feels emotionally bound to the trustees. Yet it is also cognitive because it accompanies high risk-perception, dubiousness of outsiders, and a defense of local knowledge. Institutional trust is trust in spatially and/or culturally distant institutions, both formal and informal. In this formulation, individuals cede their trust to fields of authority—the state, technology, expertise, etc. Individuals who exercise institutional trust scorn local knowledge and remain wary of their peers. Institutional trust is characterized by low affect and low cognition, effectively placing one’s fate in the hands of external institutions of authority.

Our categories are neither concrete nor dichotomous. We acknowledge previous research that advocates complex overlaps of affect and cognition (Wynne, 1992; Horowitz, 2010). Individuals exercise both relational and institutional trust simultaneously to varying degrees; yet, for heuristic purposes, we assume that most individuals inhabit one type more consistently than the other.

2.2. Self-efficacy

Bandura (2010: 860) defines self-efficacy as, “people’s beliefs in their capability to exercise control over their own functioning and over environmental events.” Where agency is the capacity to act, self-efficacy is the belief in that capacity. Empowerment is the ability to transform choices into outcomes. Of these related terms, self-efficacy, being a matter of belief, is less dependent on social and political structures. Yet, self-efficacy is deeply social and context-dependent. Bandura (2010) highlights four interrelated ways that self-efficacy impacts the individual. It modifies cognitive pathways, shaping interpretations of experience; it shapes motivation, encouraging high goal-setting and dedication to achievement; it shapes emotional experiences by reducing stress and facilitating coping; finally, it influences the activities and environments one elects to pursue.

Trust relates to self-efficacy in important ways. Self-efficacy is partially a function of self-confidence or self-trust. Risk management theory links “institutional trust” and low self-efficacy to low risk perception (Kuttuschreuter, 2006) and identifies negative correlations between institutional trust and risk perception (Trumbo and McComas, 2003). The inverse also holds; studies find positive relationships between high self-efficacy and high risk perception (Rimal, 2001). These relationships are prominent in contexts where risks are perceived as difficult to understand or control. Where self-efficacy is low, individuals turn to institutional trust as a coping mechanism (Sztompka, 1999).

While previous research finds positive correlations between self-efficacy and risk perception where lay people face conflicting messages about institutional legitimacy, to our knowledge no previous research has applied this framework to environmental decision-making, much less in agrarian communities of the global south. Integrating literature on risk management, social psychology and the new extractivism provides insights into environmental conflicts in the developing world and expands the applicability of insights from risk management to new populations. Where citizens face high-stakes with limited political and economic power, as in agrarian communities contending with mining, decision-making depends on trust. Institutional and relational trust becomes salient in such situations. Drawing on the above literature, we developed the following hypotheses:

H1a. *Individuals reporting high institutional trust are more likely to support mining.*

H1b. *Individuals reporting high relational trust are more likely to critique mining.*

The literature suggests that individuals reporting high self-efficacy perceive greater risk. These are the grapplers, the individuals who employ care and intellect in working out what they think. Individuals reporting low self-efficacy perceive less risk and, therefore, may ultimately support mining. We therefore hypothesize that:

H2a. *Individuals with low self-efficacy are more likely to support mining.*

H2b. *Individuals with high self-efficacy are more likely to oppose mining.*

We are interested in understanding how the interaction between each type of trust and self-efficacy influences one’s support for, or opposition to, mining. The effect of institutional trust, for example, may depend on one’s self-efficacy. Our final set of hypotheses explores the interaction between trust and self-efficacy:

H3a. *The interaction between institutional trust and self-efficacy will increase support for mining.*

H3b. *The interaction between relational trust and self-efficacy will reduce support for mining.*

In sum, we interweave notions of relational and institutional trust and self-efficacy to explore the microsocial forces underlying residents’ decision-making processes regarding mining in their territories. We integrate these concepts with the burgeoning discussions of “new extractivism” to further explain mineral conflicts in the developing world.

3. Data collection and methodology

Our findings are based on 500 surveys administered to, and 34 semi-structured interviews conducted with, residents of four rural Guatemalan municipalities under exploration by Goldcorp. This data collection took place in 2009. The survey included basic demographic questions and assessed respondents’ knowledge and opinions about mining, political institutions, human health, and economic development. Of the approximately 64 communities where Goldcorp is exploring, we chose four municipalities that represent the economic, ethnic, and geographic diversity of rural Guatemala. These municipalities also vary in their level of support for mining (see Table 1). Three of the four communities are in the Western Highlands because much mineral exploration in Guatemala takes place there (see Table 2).

Our qualitative analysis draws from interviews with residents in Tectitán, Huehuetenango; San José Ojetenam, San Marcos; San

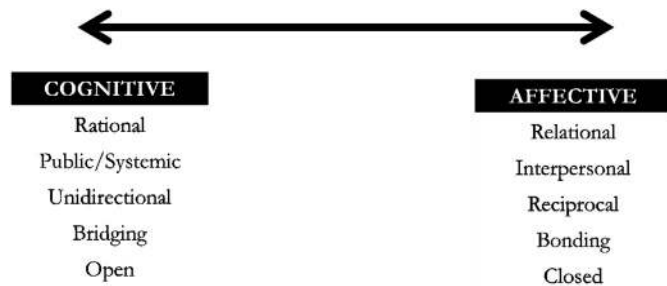


Fig. 1. Traditional typology of trust.

Table 2
Summary statistics.

	Mean	Standard deviation	Minimum	Maximum	Observations
Institutional Trust	6.11	2.22	2	10	489
Relational Trust	3.60	1.36	1	5	493
Self-efficacy	4.47	1.04	1	5	491
Age	37.7	14.4	18	90	490
Gender	1.49	0.50	1	2	450
Rural/urban	1.72	0.45	1	2	470
Education	3.02	1.62	1	6	472

Source: Authors' data.

Carlos Sija, Quetzaltenango; and Asunción Mita, Jutiapa. Three of the municipalities from which we draw our quantitative sample—Tectitán, San José Ojetenam and San Carlos Sija—were also sites for qualitative data collection. Goldcorp owns exploration licenses in each of these places; these municipalities are near the municipalities that host the Marlin Mine. All three municipalities conducted community referenda on mining where most residents opposed mining. Our fourth municipality, Asunción, Mita, Jutiapa, is the site of Goldcorp's late-stage exploration project, Cerro Blanco. We transcribed the interviews and conducted various rounds of coding and concept mapping to identify salient themes and develop the model described below. We employ pseudonyms herein to protect the study participants.

Survey data collection in rural Guatemala presents challenges. The absence of comprehensive demographic data at the municipal level prohibited the random selection of participants. Instead, we used a snowball sampling procedure to identify participants. We solicited permission and a letter of support from the Town Hall in each municipality and then hired teams of rural school teachers that participated in two-day trainings on survey administration. We then convoked community-wide meetings where survey administrators conducted the survey face-to-face, as most respondents were illiterate. We solicited consent verbally. Though our sampling procedure has limitations, we interviewed a variety of residents including farmers, merchants, and community and religious leaders. We recruited interview participants in various ways. In each of the municipalities the lead author had pre-existing contacts that assisted in early entrée. We also sought access through rural school teachers and representatives of local planning offices.

Our quantitative analyses include responses or indices of responses in the regression estimations below. We gathered data for two dependent variables that measure mining support or opposition, asking respondents whether they: 1) strongly disagreed; 2) more or less disagreed; 3) were neutral; 4) more or less agreed; or 5) strongly agreed with the statements: "Mining is more beneficial than harmful" and "I am against mining."

To measure the independent variable *relational trust*, we use responses to: "The COCODES have the capacity to improve our lives." The Community Development Councils (COCODES) are hamlet-level civic groups that liaise between the community and the Town Hall. COCODES are legally-constituted organizations with authority to solicit state funds for hamlet-level development. Agreement with this statement is an expression of reciprocal trust, as respondents support localized, peer-led processes to affect change. To measure *institutional trust*, we combined responses to the phrases: "Municipal government represents my best interests" and "The Mayor works in a dignified and honorable way." Trust in municipal government is distinct from trust in semi-formal, hamlet-level organizations comprised of family and close neighbors. Municipal government is traditional, formal, bureaucratic, authoritative and spatially distant. We combined the two variables rather than creating a factor, since each variable loaded equally on the factor (Cronbach's alpha = 0.67).

The two measures of trust in municipal government serve as an imperfect representation of trust in government and in external institutions of authority more broadly. A variety of state institutions, including municipal government, collaborate to make decisions about mining. Yet, Guatemala's central state exhibits a great deal of authority over municipal governments, and municipal authorities commonly belong to the national ruling political party and are perceived as strongly linked to their parties. Often, when mayors run for re-election, they will change parties to affiliate themselves with the national ruling party, as funds from the central government are channeled disproportionately to aligned municipal governments. Further, municipal governments are generally perceived as corrupt, even more so than national governments. Therefore, trust in political institutions perceived as corrupt suggests the kind of trust-as-resignation that we seek to measure. Finally, local municipal governments in the study ranged from opposed to neutral regarding the advancement of mining in their territory. This precludes the causal possibility that mining opposition diminishes institutional trust, supporting our interpretation that low institutional trust is related to a suspicion of mining.

Table 1
Comparative demographic data from survey sites.

	Aguacatán, Huehuetenango	Tectitán, Huehuetenango	San José Ojetenam, San Marcos	Asunción Mita, Jutiapa
Population	49,631	7861	18,606	40,614
Percent indigenous	88	43	0	5
Percent illiterate	38	57	60	31
Percent opposed to mining	85	74	72	40
Percent in poverty	82	85	87	48
National region	Western Highlands	Western Highlands	Western Highlands	Eastern Lowlands
Mineral development status	Inactive exploration concession	Inactive exploration concession	Inactive exploration concession	Active mine construction
Surveys administered	64	159	126	150

Source: Authors' data, Instituto Nacional de Estadística (2008), Camposeco et al. (2008), SEGEPLAN (2005)

Table 3
Multivariate results.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Mining brings more benefit than harm	Mining brings more benefit than harm	I am against mining	I am against mining	Mining brings more benefit than harm	Mining brings more benefit than harm	I am against mining	I am against mining	Mining brings more benefit than harm	Mining brings more benefit than harm	I am against mining	I am against mining
Institutional Trust	0.109*** (-0.028)	0.118*** (-0.032)	-0.082*** (-0.026)	-0.151*** (-0.033)	-0.116 (-0.113)	-0.109 (-0.120)	0.0368 (-0.092)	0.0141 (-0.102)	0.110*** (-0.028)	0.121*** (-0.031)	-0.083*** (-0.026)	-0.154*** (-0.033)
Relational Trust	-0.0837* (-0.044)	-0.0834* (-0.044)	0.0592 (-0.046)	0.0512 (-0.047)	-0.0487 (-0.055)	-0.0626 (-0.057)	0.120** (-0.059)	0.163*** (-0.060)	-0.272 (-0.183)	-0.330* (-0.184)	0.177 (-0.162)	0.393** (-0.178)
Self-Efficacy	-0.178*** (-0.058)	-0.162*** (-0.059)	0.161*** (-0.050)	0.108** (-0.053)	-0.521*** (-0.183)	-0.509*** (-0.188)	0.340** (-0.154)	0.363** (-0.164)	-0.392** (-0.178)	-0.418** (-0.176)	0.213 (-0.164)	0.331* (-0.178)
Institutional* Self-Efficacy					0.0528** (-0.026)	0.0537** (-0.027)	-0.0327 (-0.021)	-0.0447* (-0.025)				
Relational* Self-Efficacy									-0.0542 (-0.037)	-0.0688* (-0.037)	-0.0365 (-0.039)	0.00383 (-0.041)
N	420	420	419	419	420	420	419	419	420	420	419	419

***p < 0.01, **p < 0.05, *p < 0.1 Omitted vector of controls includes regional indicators and demographic variables, including age, gender, urban/rural, and level of education. Note: Robust standard errors in parentheses.

We are also interested in the role of *self-efficacy* in mining support/opposition, thus we include each respondent's answer to the phrase "I have the power to change my situation in life" to assess how one's belief in individual agency may affect one's viewpoint on mining. Finally, to test the hypotheses outlined above regarding the interaction of relational and institutional trust with *self-efficacy*, we include interaction terms in the model and label them as: *relational*self-efficacy* and *institutional*self-efficacy*. We employ an ordered probit specification to account for the underlying ordered nature of the dependent variable. We control for individual-level demographics and community indicators (dichotomous variables for each location) and employ robust standard errors in each specification.

We present the quantitative findings below and follow with two qualitative sections, which explore the voices of mining's critics and supporters. The qualitative findings echo and extend the multivariate analysis, deepening the theorization of how self-efficacy interacts with relational and institutional trust and how these trust types, in turn, influence divergent responses to mining.

4. Self-efficacy, trust, and mining response

Our multivariate analysis illustrates that individuals with greater institutional trust tend to support mining and agree that mining brings more benefits than harm (H1a). The estimated coefficient for institutional trust is highly significant across specifications (Table 3). Likewise, respondents with high institutional trust tend to disagree with the statement, "I am against mining." Institutional trust corresponds with mining support.

Alternatively, individuals with higher relational trust tend to oppose mining (H1b). The results are strongest in the models testing respondents' explicit support for mining, yet the signs on this coefficient conform to our expectations across models (Table 3). Respondents who value community-based or relational trust are more likely to oppose mining.

Self-efficacy is also important to this analysis. Respondents who report low self-efficacy tend to support mining (H2a). Alternatively, individuals with high self-efficacy tend toward skepticism regarding mining (H2b). This effect is highly significant and robust across numerous specifications and supports the expectations outlined above.

The interaction between institutional trust and self-efficacy is significant and positively affects the likelihood that respondents agree that mining brings more benefits than harm (H3a). Though the results are weaker, the sign conforms to our expectation in Models 7 and 8 in Table 3, illustrating that individuals with high self-efficacy are more likely to report opposition to mining. Institutional trust loses its significance once the interaction term (models 5–8) is added. The interaction between relational trust and self-efficacy has a significant effect on mining support only in Model 10 (H3b). We use community-level indicators and demographic data as controls and therefore are not discussed here at length.

In sum, institutional trust is strongly correlated with support for mining, and opposition to mining relates positively to relational trust with a strong local scalar character. Further, the self-efficacious exhibit relational trust and resist and question mining.

Our qualitative analysis extends these findings, suggesting that self-efficacy is crucial for understanding how these relationships emerge. Self-efficacy deepens affective, local ties, and, therefore contributes to a less individualistic understanding of the risks and rewards of gold mining. Self-efficacy amplifies uncertainty about mining. High self-efficacy is associated with high relational trust and a critical view of external institutions.

In contrast, low self-efficacy is associated with high trust in external institutions of authority but low localized-relational trust.

Low self-efficacy accompanies a sense of powerlessness, which contributes to resignation and acquiescence in the face of major social disruptions like mineral development. This perception of powerlessness, therefore, shapes trust in institutions of external authority. Often this trust—understood as a willingness to be vulnerable—is visual, referred to as seeing-as-trusting.

Below we analyze the mechanisms that underlie these relationships more deeply by contrasting the voices of mining critics and mining supporters and exploring the perspectives of those struggling to sort out their reactions to mining. The grapplers exemplify the links between self-efficacy, and localized, relational trust. The supporters illustrate how powerlessness acts on acquiescence and trust in external institutions of authority.

4.1. Self-efficacy, uncertainty, and relational trust

If someone offers me four hundred thousand *quetzales*, I could get hectares of land for that. I benefit. With four hundred thousand *quetzales* I sell my land, I go elsewhere, it's good for me. I build a house, buy land, maybe in Chiapas, a *caballeria* of land and maybe there's some left over to buy five or a half-dozen cows, some pasture, I benefit. But if I know that my people are suffering, my municipality is crying, my people, my neighbors are crying, well that touches me as a human and really, more than anything, we grew up here. And for that reason it's better that we be how we are now.

Sitting in his cornfield in rural Huehuetenango, looking up on the surrounding crags of land, Don Marco made this elegant case for relational trust over the economic benefits of selling his land for mining. Don Marco distinguishes between individual and communal good. Finding these two sets of benefits at odds, he opts for communal over individual good because, as he later says, “If I sell I can leave, but I can't take my people with me.” Don Marco is a community elder with high self-efficacy, saying, for example, of his status in the community, “I am a leader because of my love for the community and my desire to get projects going. The community trusts me. That's why I'm a leader.”

One frigid evening in rural San Marcos, sitting in her kitchen warming up at her wood burning stove, doña Amanda made a similar observation. “So often, humans, because of being a little bit greedy, we sell our land, and we don't realize that we are selling the lives of many—not just one person's but many lives.” A young woman, Silvita, a world away, echoed Don Marco and doña Amanda's sentiments while sitting on her parents' porch in dry, scrubby, lowland Jutiapa.

Look, if I knew in reality that [mining] is going to affect me, us, well for me it would be better if they would leave. Because I wouldn't want to be harmed, nor would I want to see my neighbors harmed. But if it's not going to affect us then let them work. Some of us benefit because they have their little salary.

Silvita, like don Marco, acknowledges the tradeoffs of mining. She sorts through the benefits and drawbacks, weighing the known economic benefits against the uncertainty of future harm. She describes the benefits in individualistic terms and the drawbacks as communal. Silvita's critique is particularly striking since her husband is a mine employee, one of the few from the area who has made a long-term career of operating drilling machinery. This insider access enables Silvita's wariness. Her knowledge and experience with mining allows her to articulate ambiguity and uncertainty. Self-efficacy contributes to individuals' willingness to admit uncertainty and consider tradeoffs.

Often, self-efficacious individuals initially granted the company the benefit of the doubt, recognizing the economic promise mining represented. These individuals would attempt to negotiate with the company, the outcomes of which were generally disappointing. That disappointment would cause the rescindment of trust. Silvita's father, don Julio, exemplifies this set of circumstances, saying, “Once I went to a meeting but I never went back because they promised they were going to help, that they would do this, that and the other, and they didn't do anything.” Similarly, don Feliciano, the President of the COCODE in a community adjacent to the Cerro Blanco mine, related a conversation with the mine's community outreach manager.

The community began to go more against the mine because they wouldn't give us those things that we needed—sewers. That's where the community began to mistrust them more. But I went to speak with [the company] afterward. I told them, “look, we're upset with you because you offered us help with the piping, but then you backpedaled.”

“Nah, man,” he told me, “how could you think that? What do you need?”

“We need this and that.”

“Right now we're gonna get it for you,” and he gave me some pipe, like 20, which was not all we needed. So he gave us that but, anyway, the community is not really with them, not in agreement anymore because they say that they're going to do this and that and they don't do it.

Don Feliciano demonstrates self-efficacy by confronting the mining company and seeking to negotiate. His anecdote demonstrates one way direct experience with the mining company—filtered through an individual's relative efficacy—brings to bear on opinions about mining. Self-efficacy underlies how individuals interpret their experiences with the firm. Don Feliciano's animated exchange demonstrates how trust-as-expectation turns to disappointment and then to failed trust (*cf Barber, 1983*). Efficacious community members viewed mining as an opportunity, but they became frustrated by the company's reluctance to collaborate and tendency to make disingenuous promises.

The uncertainty that self-efficacy produces also leads to questioning the authority, expertise and technological safeguards of mining. This contrasts with the blanket trust extended by low-efficacy individuals. Don Julio related details of meetings between community leaders and mining technicians about wastewater retention, exemplifying this aspect of mistrust.

They promised that the poisonous water would be retained with cement. But we responded that in the rainy season everything fills up with water. Huge rushes of water come down from Cerro Blanco. So how will that water not spill out? We contradicted them because we know this land. Why would we let ourselves be fooled that the water would be retained and not wash into the river?

Here, don Julio frames the discussion in “us-versus-them” terms, again demonstrating the links between relational trust, self-efficacy and wariness of mining. He invokes local knowledge of local conditions and terrain as a check on the firm's technical engineering knowledge. He trusts local knowledge and mistrusts the company's claims, opting for relational trust over institutional trust where the two are at odds. Further, the community leaders “contradicted” the outside experts, despite their authoritative airs, displaying high self-efficacy.

The self-efficacious are critical thinkers. They seek further information and express frustration with the amount and quality of accessible information. Doña Amanda states, “We peasants are poorly informed. We don’t know what benefits [mining] could bring us. Why don’t we know? Because this information is only managed by high-ranking authorities.” Doña Cecilia articulates a similar frustration.

Here we just heard from one group, the group that was negatively affected. But the group that benefitted, that accepted mining and received work, what result did they have? To better ourselves we should know both sides and be able to observe and speak with these people, the no-to-mining people and the group that had some benefits, to have more information, better information, so that we’re not so negative and we can help explain to others.

In sum, the self-efficacious are uncertain; confident enough to admit not knowing. They recognize and value the economic advantages of mining, but they see these as short-term advantages. They doubt the long-term benefits of mining. They characterize these tradeoffs as individual advantages versus communal costs, and their high relational trust relates to their critique of mining.

4.2. Powerlessness, acquiescence, and institutional trust

The self-inefficacious differ from the grapplers in four aspects. First, they are less critical of mining. Second, they eschew personal responsibility, attributing that responsibility elsewhere as institutional trust. Third, their trust is less cognitive and less affective than that of the self-efficacious. Finally, they describe the visual dimensions of trust as paramount. They equate observation with belief yet articulate an uncritical faith in distant, abstract, and unobservable institutions.

There’s a lot of water there, [people] say. Because now that they began to dig the tunnel, they say it filled up with boiling water. So they say that when they knock the mountain down, there will be a flood of hot water that will bring contamination. But I don’t believe that because [the miners] do good work. They have good devices. I don’t believe there will be contamination because they do good work with good instruments. Who knows why people would say that? People just talk to talk.

Doña Élica lived in the most modest home in the hamlet, a one room mud and straw dwelling with three walls and a thatched roof. Her husband planted corn on a few scattered swatches of land borrowed from charitable neighbors. Doña Élica demonstrates her self-inefficacy in statements like, “I don’t gossip because I don’t know anything” and “I’m grateful to [miners] because I have nothing.” Doña Élica refused to participate in mine gossip. Her unwavering support for the company hinged on trust in what she perceived as their superior technical expertise. She associates technological sophistication with work quality. This contrasts with her dismissal of neighbors’ concerns about the volcanically superheated aquifer separating the surface from the auriferous mineralization. She dismisses these concerns as “just talk.” Talk, for doña Élica is less convincing than the observable sophistication of mining technology. Rather than trusting her peers, she cedes trust to institutions with the trappings of authority. This contrasts with the self-efficacious for whom similar life-stations and social connections provided more compelling reasons to trust.

Many interviewees linked technology and trust and invoked the appearance of technological complexity in their rationale for

trusting. Further, many interviewees associated technology, expertise and the state. Pastor Hugo, an evangelical minister near Cerro Blanco, links technology, state oversight and religious faith in explaining his trust.

I am not against the company because my position is if they can get the gold out, which I can’t do, then they can have it. There are laws. [The company] explained that they will leave what the law stipulates for the benefit of the community. So why should we oppose them? The environmental problem, if the government lets us die, that’s the responsibility of the government. I don’t worry about that. First because I trust in God. Second because [the government] must look after that. It doesn’t worry me. I am not against mining.

Pastor Hugo associates technology and expertise, stating, “if they can get the gold out, which I can’t do, then they can have it.” He then discusses the company’s legal authorization and claims of compliance with royalty and tax regulations. He associates “trust in God” with trust in the state’s oversight role, offering these as reasons to be unconcerned about mining. Pastor Hugo demonstrates low self-efficacy in statements like, “I’m not involved in any social committees ... our church and my quarters are very modest ... what I know about mining is next to nothing.” This low self-efficacy impacts on his attribution of responsibility for mining’s impacts to external institutions. He even sees death as a matter of state and divine will.

Mining supporters commonly displaced responsibility onto state authorities. A tailor in rural Huehuetenango stated, “If Congress is the father of the homeland, they decide. If they approved [the mine] it will be ... the mining companies work under rights. They won’t just go off on their own. They spoke with the President, who gave them the permission to work.”

Many supporters described seeing-as-trusting regarding the company’s appearance of technological sophistication. In the narrow, northernmost strip of rural Quetzaltenango, doña Esperanza and her son stood in their flower garden on a cool morning and related their experience visiting the Marlin Mine, referring to the mine as “really nice” and commenting on the size of the trucks. “You see things there that you’ve never seen before,” she said. Doña Esperanza’s neighbor, Antonio, a bus-driver who visited the Marlin Mine on the same company-sponsored field trip, stated, “We have been to the mine to see. People say there is pollution and whatnot, but we went to see that the water is ... the dam ... there is no leak. They can’t trick us because we saw.”

Antonio associates observation with knowledge. He uses the “dam,” the tailings impoundment that contains the toxic waste water, to justify trusting the company. He dismisses concern for pollution, like others, by contrasting mere talk with seeing. He further suggests that this talk of pollution is designed to “trick,” which, he has overcome by seeing. Goldcorp, seeking to access their territory, brought many residents of this Quetzalteco hamlet to tour the Marlin Mine. Around Cerro Blanco as well, Goldcorp commonly invited targeted community leaders to visit Marlin. These visits allowed Goldcorp to facilitate seeing-as-trusting in a controlled environment.

Beyond the appearance of technological sophistication, interviewees mentioned expertise, knowledge and the education of company representatives as part of their trust calculus. Low self-efficacy influences the perception of outsiders and the formally educated as automatically trustworthy. As Mitec rancher don Homero stated, “I can’t give my opinion on mining because I don’t know. But these people that have studied, with degrees, they know the consequences, so we believe and support them.” Don Homero displays self-inefficacy suggesting that ignorance prohibits him from having opinions, shaping his trust in outside experts whose

authority stems from their credentials. Similarly, doña Esperanza remarked, when asked about Goldcorp's presence in her community, "I couldn't really tell you what they're doing because the men talk, and they haven't told me anything. I am not well-informed. I have no opinions." As with don Homero, doña Eperanza lacks the self-efficacy to offer opinions. This inefficacy acts upon her willingness to grant Goldcorp her unconditional trust. State authority, religious faith, expertise and technology are all at work in doña Maria's description of Goldcorp's arrival in Jutiapa.

It started when they came looking around with their devices, at all the land, and they said that there would be this mining project, and many people sold them land. They are the owners now. Now we can't oppose it, right? Because we just came to live here and nothing more. We don't have absolutely anything else, just this little house.

In sum, while one might interpret acquiescence to mining as the expectation of economic benefit; we find little support for this interpretation. Many of the mine opponents do expect to benefit economically, while many of the supporters do not. Instead we find self-efficacy to be a crucial factor. Those with low self-efficacy feel unable to effect change in their lives and unable to assume responsibility for livelihood outcomes. This refusal of responsibility contributes to the cession of trust to institutions of authority like technology, expertise, the state and the divine. They see these institutions as external to the community, spatially distant and formally authoritative. In some instances, observability imbues these institutions with authority while, paradoxically, for others their very abstractness gives them power. Overall, their outsider exoticism and unknowability places them above local knowledge and practices.

5. Discussion and conclusion

The new extractivism literature, for all its merits, under-emphasizes the microsocial decision-making processes of mining host community residents. Moreover, it often assumes opposition is more widespread and straightforward than our data illustrate. We integrate risk management, social psychology and trust literature to deepen our understanding of environmental decision-making. We contribute by focusing on the liminal ambiguity of coming to terms with mining. We seek to embrace and explore the complexity, intelligence, and capacity of residents in agrarian mining host communities.

Residents of agrarian communities suddenly confronted with mining must make sense of the social, political, economic, and biophysical transformations that mining portends. Our survey data broadly support the hypotheses outlined above. We find strong support for the idea that institutional trust is positively correlated with mining support while relational trust is positively correlated with a critical view of mining and negatively correlated with mining support. Our analysis illustrates that high levels of self-efficacy negatively correlate with mining support and positively correlate with mining opposition. Further, the interaction between institutional trust and self-efficacy correlates positively with mining support and negatively with mining opposition. Finally, the interaction between relational self-efficacy correlates with positively with mining opposition and negatively with mining support, but this effect is only significant in the negative direction.

The stark contrasts between the grappers' and supporters' discourses illuminate microsocial aspects of environmental decision-making. First, the two groups saw mining technology and engineering distinctly. Compare Antonio's statement of trust in the mine's design and engineering, "we went to see that the water is

...the dam ...there is no leak," with don Julio's comment, "so why would we let ourselves be fooled that the water would be retained and not wash into the river?" These are two distinct responses to the same technical phenomenon shaped by the level of self-efficacy experienced by each speaker.

Second, religion was important to both groups, but they invoked their faiths differently. Where grappers would invoke God to justify their action (e.g., "God wants us to work together") supporters would invoke God to justify their inaction (e.g., "Whatever happens, it's in God's hands"). Trust in religion, an external institution, can therefore be interpreted as institutional trust. That grappers, like supporters, invoked religion to justify their positions, complicates the dichotomous framing of relational/institutional trust, underscoring that one can exercise dimensions of relational and institutional trust simultaneously.

Finally, where grappers analyzed and weighed options, supporters highlighted their little formal education to exonerate them from forming opinions. Where grappers saw external institutions of authority as imperfect and subject to critique, supporters were uncritical. For grappers, the physical distance and outsider character of these institutions called their legitimacy and veracity into question. Supporters saw this same foreignness as a testament to their superiority. Where grappers' discourse emphasized collective concern and responsibility, supporters were individualistic in their formulations. And where grappers were curious and concerned about the long-term effects of mining, supporters articulated a shorter-term view.

Contrasting the groups highlights that grappers' mistrust of the company was often the outcome of failed trust. While popular and academic discourses frequently assume that residents of agrarian host communities are "naturally" inclined to oppose mining, in practice most mining critics became so once expectations of productive relationships with the company were dashed. In this sense, [Barbers' \(1983\)](#) definition of trust-as-expectation is helpful. In contrast, the institutional trust of supporters conjures [Davis and Schoorman's \(1995\)](#) definition of trust as a willingness to be vulnerable. Uncovering microsocial decision-making processes shows how viewpoints change. Institutional trust may be superseded by relational trust if expectations are unmet. Self-efficacy, thus, influences how individuals respond to failed trust.

This study also underscores the complexity of trust and problematizes the conventional binary. The relational trust that drives the grappers is highly affective and cognitive, while the trust articulated by mining supporters had low affective and low cognitive components. [Lewis and Weigert's \(1985\)](#) typology of trust moves from low to high cognition on one axis and low to high affect on the other axis. Within this typology one can have trust characterized by both high-cognition and high-affect, the relational trust we describe. Lewis and Weigert refer to this as ideological trust. The institutional trust we observe—trust characterized by low affect and low cognition—they call fate. However, Lewis and Weigert assert, and most subsequent literature concurs, that relational trust is less cognitive than institutional trust. We argue that contexts exist in which these two binaries do not map onto one another neatly, and we should divorce the spatial dimensions of trust from the affective/cognitive binary.

The corroboration of our findings across data types strengthens our argument, yet our data and claims have limits. Factors beyond self-efficacy shape trust and mining responses, to be sure. Yet, we have demonstrated that high self-efficacy correlates with mining opposition, high relational trust also correlates with mining opposition and interactions between self-efficacy and relational trust are associated with mining opposition. The qualitative analysis deepens these connections, suggesting some mechanisms through which self-efficacy may work to achieve this. We demonstrate how

self-efficacious individuals have high expectations for mining companies and engage them on the basis of these expectations. This can lead to disillusionment and the rescindment of trust. We have also demonstrated how low-efficacy individuals mistrust their own capacity to change their lives. They resign themselves to external authority, institutions with the trappings of power and expertise. Other social and historical factors influence residents' decision-making processes, but self-efficacy and trust are crucial to understanding environmental decision-making and environmental conflict.

This article emphasizes microsociological characteristics of environmental conflict because much of the new extractivism literature favors macro stories of mobilization, development and territorialization. Attending to the micro-level complements these structural analyses (Horowitz, 2009; Hurley and Ari, 2011). We recognize, however, that the social-psychological approach can be ahistorical and disembodied. Different regions have distinct historical experiences with foreign companies and the state (cf Moran-Taylor, 2008). Further, structural factors such as land tenure, wealth, and terrain impact how individuals, households and communities make sense of mining (Dougherty and Olsen, 2014).

The Guatemalan state has maintained a greater presence in eastern Guatemala than in the West. The eastern lowlands are more geographically accessible and culturally reflective of the state bureaucracy. This difference may influence differing manifestations of institutional trust by region. Further, the impact of Guatemala's 36-year civil war was greatest in the Western Highlands. This has had contradictory effects on residents of the Western Highlands, encouraging some to place faith in the institutions of authority and the military security apparatus while encouraging others to look inward and cultivate local, relational trust and institutional mistrust. We control for regional variability in our multivariate analysis. Trust and efficacy are not the only considerations in explaining environmental conflicts, yet a complete picture of environmental decision-making integrates social-psychology and emotion with rational livelihood concerns.

The practical implications of this research concern the central role of self-efficacy in shaping locals' responses to mining. Certain communities may possess stronger intra-community bonds than others. These bonded communities may have higher self-efficacy and collective-efficacy and may, therefore, be more resistant to the designs of multinational extractive capital. These highly bonded communities will tend to mistrust authorities when expectations are unmet. Other communities may have lower levels of collective-efficacy and experience less relational trust and higher levels of institutional trust. These communities are more vulnerable to outside interests but may also leverage greater benefits from external resources. The most vital and well-positioned communities will possess strong relational and institutional trust. Activist groups wishing to organize against mining should focus on building self-efficacy among residents, and mining companies wishing to acquire and maintain trust from all sectors of the community must focus on engaging the self-efficacious with candor and transparency.

Acknowledgments

This research was funded by the United States National Science Foundation, Grant No. 0825724.

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