Explaining Protest Activity: Evidence from Anti-Mining Mobilization in Brazilian Municipalities

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Abstract

Protests are an important strategy for social movements, but their origins remain contested in political science and sociology. Classical accounts propose a simple causal link between grievances and protests, but more recent theories argue that the effect of grievances depends on factors such as the resource mobilization capacity of civil society and available political opportunity structures. We exploit cross-sectional variation in mineral deposits, temporal variation in global commodity prices, and data on protests across 5,565 Brazilian municipalities to examine the conditions under which groups mobilize against potentially harmful mining. We find that the classical grievance hypothesis offers considerable explanatory power even in isolation. Moreover, the resource mobilization capacity of existing non-governmental organizations can account for how strongly social movements respond to the grievances. Although social movements protest in municipalities in which mayors face stiff electoral competition, other variation in political opportunity structures is not associated with protest activity.

Keywords: protests; social conflict; social movements; natural resources; Brazil; resource mobilization

Word Count: 9,900
1 Introduction

Commodity price booms have fueled economic growth across the world, but the rents from natural resource extraction often come with high social and environmental costs for local communities. Studies show that although mining activity brings economic wealth, it is also associated with land degradation, water pollution, and social conflict (Bebbington and Williams, 2008; Bebbington and Bury, 2009; Loayza, Mier y Teran, and Rigolini, 2013; von der Goltz and Barnwal, 2014). As a result, natural resource extraction is a possible motivation spurring resistance from social movements and local communities.

Consider the recent disaster in the Mariana iron mine in the state of Minas Gerais, Brazil. In early November 2015, the mine’s tailings dam broke open and sent a sea of mud flooding into nearby communities, washing away houses, cars, and animals, and leaving several dead and hundreds homeless.¹ Two weeks later when the mud flow reached the sea, many labeled the accident as the worst ecological disaster in Brazil. The disaster also precipitated a series of protests in the Brazilian capital and from indigenous communities who blocked important railway lines leading to the mine. More generally, popular protest in Brazil has increased following the explosive growth of mining in recent years.

Does mining contribute to social conflict? What political factors influence when and where local communities protest against mining projects? Although the relationship between natural resources and social conflict plays an important role in comparative politics and political economy, most recent research still restricts itself to violent conflict in civil wars (e.g., Collier and Hoeffler, 2004; Dube and Vargas, 2013). Another large body of literature examines the origins of social protest by movements and non-governmental organizations (McCarthy and Zald, 1977; McAdam, 1999), but systematic tests of hypotheses about the factors leading to outbreaks of social protest remain rare.

We contribute to the literature on social conflict by analyzing the relationship between mining and protests in Brazilian municipalities from 2000-2013. We use variation in global commodity prices to measure economic incentives to initiate mining activity. We then investigate the rela-

tionship between commodity prices and protest activity separately in municipalities with different amounts of mineral deposits, as identified by official Brazilian geological data. The major benefit of this approach is that while mining activity in any particular municipality is clearly endogenous to both actual and potential protest activity, global commodity prices are not directly affected by protests in Brazil. Because of such endogeneity, a correlation between mining activity and protests does not say much about whether mining on average triggers protests. In contrast, because the presence of mineral deposits is determined by geological factors and thus does not vary with global commodity prices, the differential sensitivity of protest activity in municipalities with greater mineral deposits offers a useful empirical solution to the difficult problem of identifying the causal effects of mining activity on protests (e.g., Dube and Vargas, 2013). When commodity prices increase, mining activity should increase only in municipalities with deposits, and this increase should trigger protests.

We find that increases in both mining activity and potential mining activity lead to social protest. Specifically, when commodity prices increase, both protests specifically aimed to stop mining projects and protests that are more generally about environmental destruction increase in municipalities with mineral deposits, but not elsewhere. A placebo test shows that protests unrelated to mining and environmental problems are not sensitive to commodity price variation in municipalities with mineral deposits. Taken together, these findings suggest a plausible causal relation between mining activities and social protests. By examining the content of the demands raised by the protesters, we also see that the vast majority focus on negative environmental externalities, such as water pollution.

Next, we reach beyond the basic grievance hypothesis and investigate how the political context and access to organizational resources can explain when and where mining protests arise. Specifically, we test hypotheses about the role of “resource mobilization” capacity of pre-existing civil society organizations (McCarthy and Zald, 1977), and “political opportunity structures” conducive to protests (McAdam, 1999), including political competition and openings provided by favorable and/or vulnerable politicians.

We find strong support for the resource mobilization hypothesis, as the presence of non-governmental
organizations in a municipality with mineral deposits appears to be a necessary pre-condition for commodity prices to provoke protests. We also find that increased commodity prices are particularly likely to provoke protests in municipalities with mayors who face stiff political competition, though other opportunity structures (co-partisanship between the president and the mayor; presence of a left-wing mayor) have little effect.

Overall, the classical grievance hypothesis performs surprisingly well. While our findings echo McAdam and Boudet (2012) in that protests are rare events, they are systematically related to factors that provoke social grievances (here, resource extraction). However, this simple model can be easily improved by considering the mediating effect of the strength and capacity of pre-existing civil society organizations. When scholars deal with the parsimony-realism trade-off in explaining variation in protest activity, our findings suggest that a simple grievance model is a useful starting point, but research on the modifying role of the civil society holds particular promise. At the same time, the role of political opportunity structures remains unclear, at least at the local level. While we thus confirm the importance of going beyond the grievance hypothesis (McAdam, Tarrow, and Tilly, 2001), we also show that explaining and predicting mining protests benefits from considering resource mobilization capacity but does not always require considering variation in political opportunity structures.

Our findings are also relevant for understanding social conflicts over natural resources and development policy in Brazil. First, while Brazil has had a robust civil society movement for many years, recently there has been a sharp increase in highly visible, contentious protests relating to large infrastructure projects such as hydroelectric dams. The existing literature on contentious politics in Brazil has focused on land occupations (Hidalgo et al., 2010; Barros, Faria, and Araujo, 2014), and we examine these other emerging forms of contentious mobilization.

Understanding the dynamics of social and political conflict surrounding resource extraction activities is not only important for understanding politics in Brazil, but also for other commodity-dependent economies in the world. This area of study is particularly salient considering the recent

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2 Many canonical theories of political opportunity structures, such as McAdam (1999), focus mostly on the national level. Our empirical approach is not suitable for testing these hypotheses, as it requires a high degree of subnational variation.
commodity boom and the high growth in the resource extraction industry across the globe, which could potentially spark increased confrontations between civil society groups, mining firms, and governments. Therefore, having a clearer picture of the factors which explain and predict when and where conflict is most likely to emerge will be key for understanding how best to address this growing trend. As long as there is demand for commodities to fuel economic growth in emerging economies, resource-rich countries will see conflicts between local communities and the mining industry, and our results can help social scientists explain the onset and evolution of such conflicts.

2 Natural Resource Extraction and Social Conflict

The large body of literature on conflicts surrounding mining offers many ideas for theory building, but there are few studies that attempt to estimate the causal effect of mining activity on social conflicts.

2.1 Literature

The existing literature on contentious politics offers several testable hypotheses on the sources of protest activity. The classic approach to both protests and violence emphasizes the role of grievances as a simple stimulus that provokes collective action (Gurr, 1970; Gamson, 1975; Collier and Hoeffler, 2004; Dube and Vargas, 2013). In this telling, social movements, interest groups, rebels, and other social collectives mobilize to demand better treatment, a larger share of the pie, or redress for perceived injustices.

Subsequent scholarship expanded on this classical perspective through several fronts. Drawing on the original work of McAdam (1999) on black insurgency in the United States, several scholars have emphasized the importance of “political opportunity structures” – political openings that enable protesters to achieve their goals – as an explanation for movement activity (Tilly, 1978; Kitschelt, 1986; Tarrow, 1998). Others, working under the umbrella of “resource mobilization theory,” emphasize the role of pre-existing organizations capable of turning grievances and demands into organized action (McCarthy and Zald, 1977; Walsh, 1981). While these theories do not question the importance of grievances as a motivation, they propose that the mapping from grievances to organized protests depends on favorable structural conditions and the cost or availability of different
mobilizing strategies.

More recently, McAdam, Tarrow, and Tilly (2001) have advocated for the integration of these competing hypotheses in a broader framework that examines how distinct mechanisms connect in longer casual process chains through episodes of contention. While such a theoretical perspective can provide valuable leverage in understanding broader trends across different contentious processes, we argue that much work is still left to be done in understanding the specific role and relative impact of individual mechanisms in different types of contentious behavior, such as social conflict over mining activity. This is because of the limitations of empirical methodologies that have been most frequently levied to examine protesting (e.g. case studies).

While prior studies have extensively examined contentious protests with qualitative methods (Yashar, 1998; Trebeck, 2007; Bebbington and Williams, 2008; Bebbington and Bury, 2009; Orta-Martínez and Finer, 2010; Arellano-Yanguas, 2011) and also quantitatively in some settings (Inclan, 2009; Trejo, 2009; Hidalgo et al., 2010; Barros, Faria, and Araujo, 2014), tests that identify the causal relationship between natural resource extraction and protest activity remain rare outside the domain of civil war. In Latin America, Arce (2010) finds that weak political institutions contribute to protest activity in general by creating space for non-institutional political activity. In another study (Arce, 2014), he finds that in Peru, waves of democratization have been accompanied by protests against mining because political liberalization and fragmentation in local politics create space for political action. Christensen (2015) also finds that the onset of mining activity in Africa has been accompanied by increased protest activity. A recent study of mining and social conflict in Latin America by Haslam and Tanimoune (2016) shows that distance to mines reduces correlations between conflict and its predictors. However, none of these studies account for the endogeneity of mining activity to local political conditions or consider the possibility that protests and social conflict often precede any mining activity due to tensions provoked by anticipation effects or disagreements over the distribution of benefits.

Although theoretically sophisticated and supported by careful case studies, in general the above literature offers limited evidence for the relative impact of any particular mechanism. In particular,

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McAdam and Boudet (2012) combine quantitative and qualitative methods to examine protests against potentially divisive energy projects in American communities.
the identification of the causal effect of grievances or other factors on contentious politics has proven to be a vexing problem. In the case of civil war, Dube and Vargas (2013) use variation in the prices of two export commodities, coffee and oil, and find that (i) high coffee prices reduce violence because they increase the opportunity cost for potential recruits, but (ii) high oil prices increase violence by increasing gains from winning the conflict. It remains unclear, however, whether the same theoretical mechanisms apply to peaceful forms of civil protest.4

Our analysis offers three central improvements over the existing literature. First, by using exact locations of mineral deposits, we can identify the sources of protest activity more precisely than existing work. Specifically, we examine how two orthogonal variables, the existence of mineral deposits (cross-sectional variation only) and global commodity prices (temporal variation only) jointly generate protest activity. Second, our empirical framework avoids the pitfall of assuming that protests related to natural resource extraction only occur following the onset of mining activity.5 By maintaining a sharp focus on deposits, we demonstrate that social conflicts over mining can originate even before ground is broken on a new project. Finally, our empirical framework allows us to compare several major mechanisms related to both political opportunity structures and resource mobilization that contribute to the outbreak of social protest under one quantitative framework.

2.2 Mining in Brazil

Brazil is a major player in global mineral production. According to the U.S. Geological Survey, in 2010, at a time of high commodity prices, mineral extraction and processing directly contributed about 3.6% of Brazil’s GDP, with major production in a wide range of minerals.6 Brazil’s antiquated 1967 mining legislation, though amended over decades, sets the basic framework for exploration and extraction concessions, and restricts ownership over mines to Brazilian legal entities or joint ventures with foreign companies. A key feature of Brazil’s legislation is that royalties to municipalities for

4In particular, Dube and Vargas’ finding on the opportunity costs of violent conflict for labor may not be transferable to other contentious mobilizing outside the context of civil war, as protesting is generally a short-term activity that need not prevent people from continuing to participate in labor markets.

5For studies that focus on protests and conflict after mining activity begins, see Christensen (2015) and Haslam and Tanimoune (2016).

6“I the Americas, Brazil continued to be a leading producer of aluminum, bauxite, cement, ferroalloys, gold, iron ore, kaolin, lead, manganese, nickel, steel, and tin” (USGS, 2012: 4.2). Oil is another major natural resource extracted in Brazil, but our focus here is on mineral extraction.
various minerals are only about 1-2 percent of value – much lower than in other Latin American countries. Another key feature of the legislation, but which is more common within Latin America, is that mineral concessions are granted on a first come, first served basis instead of through public auctions.

Aside from isolated cases concerning long-running mining operations, conflicts over mining in Brazil are a relatively recent phenomenon and are likely associated with the international commodity boom. This growth in mining-related conflict has begun to attract the attention of many NGOs and civil society organizations that have not traditionally advocated environmental or resource extraction issues, such as the Pastoral Land Commission (CPT) and Landless Workers’ Movement (MST). The CPT’s reports on social protests, from which we draw our data, has also begun to directly identify cases of social protests related to mining. In addition to finding a potential link between raising commodity prices and increased social conflict around mining activity, the CPT has also reported that many of these conflicts are rooted in concerns over access to clean water, land grabbing, and environmental damage (CPT, 2015: 80-81). In our dataset, the majority of mining conflicts occur in the mineral-rich areas of the Southeast and Northeast, as well as the Amazon region in the state of Pará.

3 Theory and Hypotheses

We develop the theoretical foundation of our study in three steps. First, we explain why we expect mining to cause social tension which eventually leads to protests. Then, we offer a discussion of the empirical implications of the resource mobilization and political opportunity structure mechanisms in turn.

3.1 Mining and Protests

We begin our empirical analysis by adopting the original question of the classical approach, which examines the grievances that initially spark contentious social mobilization. Grievances related to mining often center on environmental impacts, such as water pollution of acid mine drainage (Hilson, 2002; Bebbington and Williams, 2008), or negative social effects on traditional livelihoods and social relations (Bebbington and Bury, 2009) or health outcomes citepGoltzBarnwal2014. The
economic consequences of mining can also be another motivation for mobilization. Although mining may increase household incomes and the prices of nontradables in areas areas (Aragón and Rud, 2013), it also may be accompanied by rising income inequality (Loayza, Mier y Teran, and Rigolini, 2013), or local corruption (Knutsen et al., 2016).

As the number of people holding grievances increases and these grievances become increasingly severe, the potential for social mobilization increases. The resulting social movement demands action to address their concerns either directly from the perceived culprit (e.g., a multinational mining corporation) or a responsible authority (e.g., national government). The demands may range from stopping the activity causing the grievances to sufficient compensation. For example, the literature on bargaining between local communities and mining companies emphasizes bargaining failure due to the difficulty of reaching an enforceable and credible agreement on the distribution of resource rents and the mitigation of negative externalities (O’Faircheallaigh and Corbett, 2005; Trebeck, 2007).

Following Dube and Vargas (2013), we examine the differential effect of changing global commodity prices on protest activity in municipalities with and without mineral deposits. In municipalities with mineral deposits, higher international commodity prices increase the intensity of existing mining activity, as miners increase production to take advantage of higher prices. Higher prices also incentivize exploration in areas adjacent to existing mines or in unexploited deposits that previously were not economically viable. Municipalities without known deposits, however, will not experience such an effect. Increased mining activity, in turn, leads to higher incidence of protest due to grievances.

Hypothesis 1. When global commodity prices for minerals increase, protests in municipalities with mineral deposits increase.

Identifying empirically whether grievances or economic opportunities are ultimately motivating protests is difficult. The choice of framing or type of claims made by social movements is ultimately a strategic decision aimed at galvanizing local support, tapping into national and international support networks, and other factors that may realize a movement’s goals. Therefore, we are unable to test directly whether claims for environmental protection or revenue sharing are “sincere” motivations
or strategic choices meant to advance other interests. Nonetheless, we offer a descriptive account of framing by looking at the claims and demands made by protesters.

### 3.2 Resource Mobilization and Political Opportunity Structures

The resource mobilization mechanism generates a simple prediction: where organizational capacity for protest exists, grievances are more likely to provoke mobilization and protests. The most common form of resource mobilization highlighted in the literature are civil society organizations (Yashar, 1998; Tarrow, 1998; Trejo, 2009). Mobilizing supporters to take to the streets is often a costly process that involves connecting potential supporters, convincing them to engage in potentially risky behavior, and drawing upon sources of funding and prior experience of successful mobilization strategies. Pre-existing grassroots organizations or NGOs can facilitate all these activities, thereby increasing the probability of successfully convening supporters for a protest. In the context of Brazil, organizational resources is a particularly likely explanation given the increased attention that established organizations such as the Landless Workers’ Movement (MST) and the Pastoral Land Commission (CPT) have begun to dedicate to mining activities. Moreover, protest activity in Brazil is traditionally less frequent than in most other Latin American countries (Moseley and Layton, 2013: 1), suggesting that mobilization may require specific resources and mobilization capabilities. To test this hypothesis, we allow the effect of commodity prices in municipalities with mineral deposits to depend on the number of pre-existing civil society organizations.

**Hypothesis 2.** The positive effect of global commodity prices on protest in municipalities with mineral deposits will itself increase as the number of pre-existing civil society organizations increases.

The impact of grievances on the incidence of protests is also likely contingent on the local political context (Inclan, 2009; Arce, 2014). In municipalities that have both mineral deposits and political opportunities favorable to social mobilization, protest activity should increase more sharply than in other municipalities. To test this hypothesis, we draw on the large body of literature on social movements in Latin America and propose three measures of political opportunities:

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7See Collier and Hoeffler (2004) for “greed and grievance” in civil war. In the case of low-intensity conflicts about mining, the notion of greed is less appropriate, as it is not normatively troubling that a local population bargains for a share of gains from potentially disruptive mining activity. This is why we follow Arce (2014) and focus on economic opportunities, instead of greed.
partisan alignment between the municipality’s mayor and the president of the federation; (ii) the rule of a left-wing party; and (iii) the mayor’s margin of victory.

First, party alignment between the mayor and the president could affect opportunities to mobilize (Murillo and Ronconi, 2004; Arce and Mangonnet, 2013). Specifically, the Workers’ Party (PT) traditionally has had stronger ties with civil society groups and may be able to co-opt and divert popular pressure through official channels where the PT controls the mayorship (Goldfrank, 2011). This prediction would agree with other studies that have found that having a favorable local politician in power may serve to dampen protests (e.g., Inclan, 2009). Therefore, political alignment of the mayor with the PT’s national government may serve to lessen incidence of protest.

Second, many scholars have noted that the resurgence of the Left in Latin America has been accompanied by an effort from left-wing parties to promote a “deepening” of democracy (Roberts, 1998) or a form of radical participatory democracy (Levitsky and Roberts, 2011: 24-25) that encourages active participation by civil society. As resistance to natural resource extraction has played prominently in leftist ideology, we expect that the presence of a left-wing mayor to both increase the expected likelihood of holding a successful mining protest and also decrease the expectation that protest will be met with repression (Barros, Faria, and Araujo, 2014), thus increasing the incidence of protest in those municipalities.8

Finally, the degree of political competition in a municipality may also provide an opportunity for successful mobilization (Inclan, 2009; Arce, 2014). We use a mayor’s margin of victory in previous elections as a proxy for political competition and an opening for effective mobilization.9 Specifically, a strong mayor in a non-competitive district would likely be less vulnerable to pressure from popular protest, whereas a well-timed demonstration might be enough to cajole a weak mayor into making concessions and siding with protesters. Therefore we expect to see the effect of commodity prices on protest increase in municipalities with mayors elected by a narrow margin of victory.10

8To be sure, Bruhn (2008: 3) considers the possibility that the likelihood of protest activity is maximized when the government is hostile.

9Unlike previous studies (e.g., Inclan, 2009; Arce, 2014), we do not use a measure of political fragmentation based on the number of parties to measure political competition. Instead, we argue that a measure of the margin of victory better reflects the likelihood of future turnover (and provides a strong signal to societal actors) that would open space for making additional demands on local government.

10However, we would not necessarily expect mayors facing competitive elections to be more pro-mining. The political opportunity structure hypothesis focuses on the government’s responsiveness to protests, as opposed to the
Hypothesis 3. When global commodity prices increase, the positive effect on municipalities with mineral deposits increases when the mayor (i) is not aligned with the PT federal government, (ii) belongs to a left-wing political party, and/or (iii) has a narrow margin of victory in previous elections.

4 Research Design

Rather than measuring the effect of mining activity on protest directly, which would be complicated by the likely endogeneity between these two variables, we exploit exogenous variation in international commodity prices to improve causal identification. Localized protests in Brazil likely have no effect on internationally set commodity prices, and we assume that international prices should only affect mining protests through their impact on mining production, a strategy that has proved successful in studies on other types of conflicts (Dube and Vargas, 2013). In essence, our model compares the marginal effect of prices on levels of protest across Brazilian municipalities with and without mineral deposits. As global commodity prices only vary over time (they are the same for all of Brazil), our model only needs to account for variation over municipalities.

Our dataset consists of 5565 Brazilian municipalities, with boundaries defined as in the 2000 Brazilian census. The protest dataset, in turn, covers the years 2000-2013. With 14 observations per municipality, we have a balanced panel with a total of 77910 observations.

In our model, the variable Deposits is a count of mineral deposits within 10 kilometers of the municipality and the variable Index is a global commodity price index. Using these definitions, the following equation represents our primary specification:

\[ Y_{i,t} = \alpha_i + \beta_1 \text{Deposits}_i \times \text{Index}_t + \sum_k \gamma_k x_{i,t}^k + \omega_{j,t} + \epsilon_{i,t} \]  (1)

where \( i \) indexes municipalities, \( j \) states, and \( t \) indexes years. Variables \( x^k \) are control variables, while the vector \( \omega_{j,t} \) includes state-year fixed effects. Note also that \( \alpha_i \) is the municipality fixed effect and \( \epsilon_{i,t} \) the error term. Throughout, we cluster standard errors by municipality.\(^{11}\) Finally, government’s views of the issue at hand.

\(^{11}\)As a robustness check we also follow Conley (1999) and estimate standard errors using yearly and municipal fixed effects and assuming serial correlation over time and spatial correlation between nearby municipalities. Our results remain very robust to these alternate estimation techniques and are included in our appendix (Table A14).
note that the constituent terms for *Deposits* and *Index* are excluded from the estimation because of the inclusion of municipality and year fixed effects. Only the product term exhibits variation after cross-sectional and temporal variation have been captured by the fixed effects.\(^{12}\)

### 4.1 Dependent Variable

Our primary dependent variable is a count of public protests by rural communities and civil society organizations within a municipality in a given year. We draw the data from DATALUTA’s (2014) coding of the annual reports on rural conflicts of the Pastoral Land Commission (*Comissao Pastoral da Terra* or CPT), an organization affiliated with the Catholic Church in Brazil and which has been documenting rural conflicts in Brazil’s countryside for over 30 years.

The CPT has a systematized data collecting process. First, CPT agents in regional offices receive first-hand accounts of protests or conflicts either directly from affected parties or through its network of civil society affiliates. Then, the CPT corroborates first-hand accounts with secondary sources of information including media reports or official government documentation. In the case of conflicting information, the CPT gives greater weight to first-hand evidence. The CPT’s database only includes conflicts which involve rural communities or workers or which are related to disputes regarding the use, occupation, or possession of rural land (CPT, 2015: 12-13), including those related to mining and resource extraction. Unfortunately, however, there is no specific coding for mining-related protests. Therefore, we conduct a separate coding through a key-word search for cases that mention mining activity.\(^{13}\)

The final data set includes 102 mining-related protests. This low number of rare events reflects the strict requirements of the coding, and the rate of false negatives (protests against mining not recognized by our coding) is thus probably high.\(^{14}\) In evaluating our results, it is thus important

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\(^{12}\)A possible disadvantage of this approach is that municipalities without any protests are subsumed by the municipal fixed effects. In the appendix (Table A7), we estimate models without municipality fixed effects; the results remain robust.

\(^{13}\)Specifically we search for all Portuguese roots related to mines, minerals, or mining activity including minera-, mineir-, minero-, mina, garimp-, but exclude references only to the State of Minas Gerais. We also include a search term to select cases involving the Brazilian mining corporation, Vale, which is involved in a large number of mining operations in the country.

\(^{14}\)Although this risks undercounting smaller protests, we are confident that our measure identifies more protests than traditional measures used in other studies such as counting local newspaper reports (Trejo, 2009; Arce, 2014). This is because we subsequently conducted an internet search for information regarding all mining protests, many of which did not appear in traditional media sources, indicating that the CPT’s database is likely more sensitive than
to keep in mind the possibility of downward bias in coefficient: because some anti-mining protests are not captured by the outcome variable, it is possible that we understate the effects of the explanatory variables. Another possible source of downward bias is non-local protesting against mining, perhaps in state capitals of Brazil; we guard against this possibility by including both municipality and state-year fixed effects in our models.

Given the low number of protests that can be unambiguously identified as anti-mining, we verify the robustness of our findings by also analyzing a broader category of protests against environmental degradation, a key issue raised by mining protests. For this coding we conduct a key-word search for environmental concerns, while excluding any protests obviously connected with non-mining activity (e.g. large dams, forestry, industrial agriculture, etc.). This expanded category yields 436 protests and allows us to scrutinize the robustness of our results.

The geographic distribution of the dependent variable is illustrated in Figure 1. As the figure shows, there is a clear difference between the number of narrowly and broadly defined protests. However, both can be found across a wide geographic area of Brazil, including the less densely populated municipalities in the Amazon region.

In the appendix, we provide a histogram of the distribution of the dependent variable (Figure A2; Section A1.3 contains other histograms). As the histogram shows, the distribution is skewed. To deal with any resulting bias in the estimation, we also re-estimate our models using a logarithmized count of protests and a simple indicator for any (that is, non-zero) protests or demonstrations as the dependent variable. To foreshadow, the results are fully robust to these changes (see Tables A5 and A6).

4.2 Explanatory Variables

Our first explanatory variable is a count variable for the number of known, and potentially exploitable mineral deposits that affect a given municipality. These deposits include a large list of
metals, rare elements, and other materials that are mined within Brazil both for internal consumption and export to international markets.\textsuperscript{16} We extracted the geospatial point data for these deposits from the Geological Service of Brazil (CPRM),\textsuperscript{17} and then constructed our variable by identifying all known deposits that were located within 10km of municipal boundaries.\textsuperscript{18}

We use these points as time-invariant indicators for the presence of mineral and metal resources in Brazil’s territory, and not as a proxy for active exploration or exploitation of subsoil resources. Because mining operations are potentially endogenous to protests and other forms of social conflict, these activities cannot be used as exogenous independent variable; mineral deposits, however, are invariant over time and thus respond neither to protests nor to international commodity prices.\textsuperscript{19} Therefore, this variable should be understood as a measure of the known mining potential of a given municipality. Given the history of mining in Brazil, it is reasonable to assume that for the period of our dataset (2000-2013) all deposits within the dataset were previously known.

Figure 2 shows the distribution of deposits (for other maps, see Section A1.4). Mining deposits are located in or near a large number of Brazilian municipalities (3622), with a high concentration in the Southern and Northeastern highlands, the Amazon region, and the state of Goiás. The distribution and limitations of our mining deposit data posses two potential problems. First, the highly skewed distribution of municipalities with a very high number of mineral deposits could reduce reliability of our results (see Figure A3). In addition, we do not have data on the relative size and extraction activity associated with each deposit, and therefore cannot adequately distinguish highly active deposits from dormant ones. To account for these sources of error, we also include two additional sets of models that use a logarithmized count of deposits and a dummy variable for any deposit within 10km of a municipality.

\textsuperscript{16}The full list of mining deposits according to categories used by the CPRM include: noble metals, iron ore, gems, construction material (sand, rock, etc.), industrial rocks and minerals (chemical raw materials), non-ferrous metals and semi-metals (aluminum, tin, and copper), agricultural minerals (phosphates, sulfur, potash, etc.), energy mineral resources (coal and uranium), and mineral water.

\textsuperscript{17}See GEOBANK visualizer at \url{http://geowebapp.cprm.gov.br/ViewerWEB/}.

\textsuperscript{18}As Figure 2 below shows, the 10km radius is a conservative choice that avoids false positives in the detection of mineral deposits. If anything, our estimates would thus exhibit downward bias because some affected municipalities would be coded as being without deposits.

\textsuperscript{19}Importantly, though, mining deposits are highly correlated with mining titles claimed. As Table A1 shows, the mean number of titles in deposit municipalities is three times as high as the number of titles in non-deposit municipalities. Thus, deposits are a strong predictor of potential mining activity.
Our second variable is a global commodity price index for metal and mineral commodities. We use commodity prices to measure external influences on pressure to mine. When commodity prices are high, mining activity increases in a country such as Brazil because the profits from doing so are large. The data are from the Global Economy Monitor (GEM) of the World Bank.\textsuperscript{20} In Figure 3, we show variation in the GEM commodity price index and the prices of several key metals. As the figure shows, there is considerable variation in global commodity prices over time. A comparison of variation in commodity prices and annual mineral production in Brazil between 2000-2013 also reveals a strong positive correlation.\textsuperscript{21} The boom years of the 2000s, led by increased demand from China, resulted in increased commodity prices, until the onset of the financial crisis in 2008 brought prices back down. Note also that the commodity price boom does not coincide with the political left’s rise into power: President Lula was inaugurated on January 1, 2003, at a time when commodity prices remained flat, and remained in office through the commodity price collapse after the financial crisis.\textsuperscript{22} For ease of analysis, we divide the value of the index by 1,000 to make the coefficients legible.

Finally, temporal variation in protests across municipalities with and without mining deposits is illustrated in Figures 4. As the figures show, there is a much stronger association between protests and commodity prices in municipalities with mineral deposits than in municipalities without. Another notable feature of the temporal variation is how strongly the pattern in municipalities with mineral deposits resembles the pattern of the commodity price index, as our theory would imply.

\textsuperscript{21}Using data from Minerals UK http://www.bgs.ac.uk/mineralsUK/statistics/worldStatistics.html, the pairwise over-time correlations are +0.87, +0.41, +0.82, and +0.17 for the major Brazilian minerals iron, gold, copper, and manganese ore.
\textsuperscript{22}We also test whether left-wing municipal mayors modify the effect of commodity prices and find little evidence for this mechanism.
4.3 Identification Strategy

Our identification of the interactive effects of global commodity prices and mining deposits is based on two primary assumptions. First, mining protests in Brazil do not affect the values of the global commodity index. This assumption appears valid, as commodity prices during the period of investigation were largely driven by variation in demand, in turn depending on the global economic outlook. Moreover, we use an index for all commodity prices, as opposed to only those in which Brazil is a producer.

The second assumption is that the distribution of mineral deposits can be considered quasi-random, and not related to incidence of protest except through mining activity. This, again, appears plausible because mineral deposits are immutable geological features that do not depend on other characteristics of a municipality. By focusing on deposits instead of mining activity, we can rule out bias from endogenous strategic behavior by mining companies.

Because global commodity prices could be correlated with other external changes, we include either year or state-year fixed effects in all models. These fixed effects allow us to account not only for any other secular trends over time, but also to consider differential trends between Brazilian states. Thus, to bias our estimates, any external changes correlated with commodity prices would have to produce differential effects on protest activity across municipalities with and without deposits within Brazilian states.

Another possible concern is the possibility that municipalities with mineral deposits are systematically different from other municipalities along other dimensions that also could be related to protests. To account for this possibility, we interact four key control variables with global commodity prices.

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23 The impact of global commodity prices on mining activity in Brazil is not affected by variation in the value of the Brazilian Real, because factor inputs for mining are largely imported from international markets, and most mining activities are conducted by multinational corporations traded on international markets, such as the Brazilian mining giant Vale S.A. (traded on the NYSE). The yearly averages for the USD-BRL exchange rate also largely track the variation in global commodity prices, with a correlation of -0.709 for the years in our dataset.

24 Unfortunately, we cannot weight the price index by the specific mineral deposits in each municipality because such an index cannot be created for non-deposit municipalities.

25 One possible critique of this assumption would be if information regarding the location of deposits was not exogenous to our model, for example, if new deposits where recently discovered or if information regarding deposits was not public knowledge. While we do not have specific dates of discovery for each deposit, the information from the CPRM databank includes only well-established locations of deposits and are publicly available and easily accessible through a government web site.
modity prices. First, low levels of economic development are likely related to a host of economic and political grievances that can spark protests through channels other than mining, and may be particularly vulnerable to fluctuations in international market places. Therefore, we control for economic development by including a variable for GDP per capita of the municipality for the year 2000. Second, Brazilian municipalities vary greatly in size ranging from a few square kilometers to the largest municipality in the world, Altamira, PA, which covers over 161,445 km$^2$ of area. As the size of the municipality could also influence the incidence of protest observed, we include a control for the overall size of the municipality in square kilometers. Another concern is that the protest data has a rural bias as the CPT specifically targets rural conflicts. To account for this, we include a measure of the percentage of rural population according to the 2000 national census.\footnote{In Section A3 of the appendix, we also include models that control for municipal population and/or population density, with no changes in results.} Fourth, municipalities that are located on the coast may also be more vulnerable to fluctuations in international market prices, as they are more likely to be connected to global markets through ports located within their territory. We include a dummy variable to indicate coastal municipalities to account for this effect.

Finally, we consider the possibility that protests lead by indigenous peoples may be driving results. In Brazil and Latin America in general, indigenous peoples have played an increasingly important role in social conflicts over mining and natural resource extraction (Jackson and Warren, 2005; Bebbington et al., 2008). Indigenous peoples are both more vulnerable to resource extractive industries (Anaya and Williams, 2001; Ricardo and Rolla, 2013) and may have greater capacity to mobilize (Ostrom, 2003; Schwartzman and Zimmerman, 2005; Braaten, 2014). Models including presence of indigenous peoples and indigenous protests do not alter our results and are included in Section A4.1.

Summary statistics are included in the appendix Tables A1 and A2. Municipalities with deposits have slightly higher average number of protests than either the entire sample of municipality-year observations or the subset of municipalities without deposits. Also, the prevalence of all types of protests increases over the 14 years of our analysis. For the main control variables in our analysis, there is some degree of imbalance between municipalities with mineral deposits, which tend to
be larger, more rural, have lower GDP per capita, and have less NGO presence than non-deposit municipalities. However, indigenous population and variables related to political opportunities (political alignment, margin of victory, and mayor ideology) do not vary much between deposit and non-deposit municipalities.

In Figures A10-A12, we test whether the interactions between mineral deposits and the presence of mobilization resources and political opportunities are actually reflected in the data, and not an artifact of modeling choice (Hainmueller, Mummolo, and Xu, 2016). We check for evidence of linear interaction effects with all interaction variables and for common support of observations at different combinations of the moderator variables and treatment variable. We find that our data has common support for all triple interaction models and that there is evidence of the linear interaction effect in both the resource mobilization (NGO presence) and opportunity structures (vote margin) models, that are central in our conclusions.

4.4 Political Opportunity Structures

For political opportunity structures, we borrow data on election results from the Superior Electoral Court of Brazil (TSE). For political alignment, we use a dummy variable that indicates whether the mayor of the municipality for the observation-year is a member of the Workers’ Party (PT) at the same time that the PT has the presidency, either during the administration of Luiz Inácio Lula da Silva (2003-2010) or Dilma Roussef (2011- ). For the ideology of the mayor’s party, we use ideology scores from Baker and Greene (2011) for national parties on a scale of 0 (left) to 20 (right). Finally, for margin of victory we use a measure from the TSE data that gives the percentage point difference in vote totals between the mayor and the runner-up candidate in the previous election. The total dataset with political variables covers three complete mayoral cycles beginning in 2001. We exclude election data from 2013 due to inconsistencies with electoral results in the TSE data from that year. For all models we include the political variables directly in the regression (as they are time-variant) and also interact them with both deposit location and mineral index variables.
4.5 Resource Mobilization

To measure resource mobilization capacity, we use the presence of registered, non-profit, non-governmental organizations (NGO) in the municipality. We draw NGO data from the Brazilian Institute of Geography and Statistic’s (IBGE) registry of businesses. The IBGE identifies Non-profit organizations based on five selection criteria and then culls non-voluntary or state related institutions from this list (IBGE, 2012).\textsuperscript{27} We then use the log transformation of the raw count of NGOs to avoid bias from outlier municipalities with high presence of civil-society organizations. We use a time-invariant measure that draws NGO presence from 2006 (the earliest in the IBGE registry) and interacts this variable with both the deposit location and the mineral index variables.\textsuperscript{28}

While our NGO data is the best source of information available for existing organizational resources, it could potentially cause an upward bias on estimates. As the CPT’s measures of protest comes through its NGO network, it will more likely pick up a positive finding of protest for any given municipal-year observation wherever there is greater NGO presence. Therefore, our models may overestimate the marginal impact of NGOs.

4.6 Placebo Test: Land Occupations and All Protests

As a placebo test, we estimate our models with the (1) count of land occupations by landless peasant movements and (2) all protests recorded by the CPT networks as the dependent variable. Land occupations typically target large, agricultural estates on the rural frontier or state land that is appropriate for cultivation, but which is not currently in use. As the areas that are potential targets for land occupations are not systematically correlated with areas of mining deposits, we should not see a peak in land occupations in municipalities with deposits even during commodity price booms. In addition, as the CPT database is quite extensive, mining protests only account

\textsuperscript{27}The five selection criteria, which are based on the UN Classification of the Purposes of Non-Profit Institutions Serving Households (COPNI), are the following: the entity must be an organized institution, private, non-profit, self-administered, and with voluntary membership. The culled organizations include: political parties, unions, federations, condominium associations, mediation and arbitration entities, municipal and school funds, cemeteries, and funeral houses.

\textsuperscript{28}A possible concern with this approach is that NGO presence may vary within municipality by commodity prices. Comparing NGO values for years 2006 (median 17; mean 48.22), 2008 (median 17; mean 50.03), and 2010 (median 17; mean 52.44), this does not appear to be the case: the within-municipality correlations between years 2006/2008, 2006/2010, and 2008/2010 are 0.999, 0.998, and 0.998, respectively. In other words, there is virtually no within-municipality variation over this period of 5 years, despite variation in commodity prices.
for approximately 1.05 percent of the total protests recorded between 2000-2013. Therefore, the data for all protests test whether mining protests are simply following a general trend of constantly increasing protests over recent decades in Latin America – a “normalization of protests” as some have suggested (Moseley and Moreno, 2010).

5 Results

In this section, we summarize our primary results and the placebo tests. The robustness checks can be found in the supplementary appendix.

5.1 Main Results

The main results are reported in Table 1. Models 1-3 do not include control variables, while the remaining models interact the commodity price index with four time-invariant municipality characteristics. Models 1 and 4 use counts of mineral deposits; models 2 and 5 use an indicator for the presence of any deposits; models 3 and 6 use the logarithmized values of the index and the count of deposits. As the estimates show, the interaction term for the index and deposits is always positive and, in 5 out of 6 models, statistically significant. The substantive effects are best illustrated with model 6, which includes a full set of control variables. In a municipality with 17 deposits (sample mean), increasing the value of the global commodity index from the minimum to the maximum generates an increase of approximately 0.2 percentage points in the probability of a mining related protest relative to a municipality with no deposits at all, that is, twice the sample mean of 0.1 percentage points. The control variables, in turn, show that protests increase with commodity prices in urban municipalities with large areas.

[Table 1 about here.]

Next, we consider a broader definition of mining protests that also includes environmental protests. Table 2 shows the same results with an alternate specification of the DV to includes most environmental protests, but eliminating those that are likely unrelated to mining. All other aspects of these models are identical to those in Table 1. As the results show, the coefficient of the interaction term is again always positive and, in 4 out of 6 models, statistically significant. When we again illustrate substantive effects with model 6, we see that the increase in the probability
of protests is now about 0.4 percentage points, against a sample mean of 0.6 percentage points. Control variables generate similar estimates as when the outcome variable is narrowly defined, except that now coastal municipalities also react more strongly to commodity price increases than municipalities in the interior.

[Table 2 about here.]

These results show that the grievance hypothesis performs well in explaining the onset of protest activity against mining. Global commodity prices predict the onset of anti-mining protests only in municipalities with mineral deposits, and in this set of municipalities the substantive effects are relatively large.

5.2 Placebos: Land Occupations and All Protests

We next conduct placebo tests by using commodity prices and mineral deposits to predict all protests (both mining and non-mining) and land occupations within the CPT dataset. The results for all protests are reported in Table A3 and land occupations are displayed in Table A4. As the tables show, there is no such effect for either placebo. Without control variables, the interaction term for all protests consistently has a positive, large, and statistically significant coefficient, but this association disappears as soon as we account for other municipality characteristics. This is reassuring because it shows that commodity prices only predict mining-related protests, as opposed to social conflict more generally.

6 Causal Mechanisms

We now begin testing refined hypotheses about the conditions under which grievances give rise to protest activity. We evaluate the explanatory power of political opportunity structures and resource mobilization theories, finding some support for the former and strong, robust support for the latter.

6.1 Political Opportunity Structures

We conduct three different tests on the conditional impact of three political opportunity structures on protests: (i) alignment with the President’s party, (ii) left-wing partisanship of mayor, and (iii) mayor’s margin of victory. Table 3 shows the estimates of mayor’s margin of victory, with a
negative and statistically significant coefficient for the triple interaction. This coefficient can be interpreted as suggesting that in the presence of mineral deposits, higher commodity prices increase protest activity whenever the mayor faces stiff political competition. This result is consistent with the political opportunity structure theory, as political competition enables social movements to demand action by the mayoral administration. When the mayor needs the politically support of the protesters, they thus have an incentive to mobilize to strengthen their position vis-à-vis the mining industry.

At the same time, the other indicators of political opportunity structures produce null results. In the appendix, Table A11 examines the role of political alignment with the President. In Table A12, the role of left-right ideology is investigated. In both cases, we fail to find evidence for the modifying roles of either of these potential sources of political opportunity.

6.2 Resource Mobilization

Table 4 examines the role of NGO presence – our preferred measure of resource mobilization capacity – in explaining protest activity. Here, we see a very strong and statistically significant triple interaction (see Table A13 for models without triple interaction). In the presence of NGOs, the combination of mineral deposits and high commodity prices has a particularly strong effect on protest activity. Indeed, across all six models, the coefficient for the commodity price and mineral deposits interaction with zero NGO presence is negative, though mostly statistically insignificant. This is strong and robust evidence for the importance of resource mobilization capacity as a pre-condition for the effects of grievance on social protests.

7 Content of Protests against Mining

We finally examine the stated and perceived goals of protesters, focusing in particular on the framing of campaigns. This analysis offers insights into whether protesters focus their attention on grievances (threats) or bargaining over rents (opportunities). Empirically, we examined the
content of protests in miniature case studies of the 102 protests that specifically targeted mining in our dataset. Of these protests, we found information about 95 cases, the vast majority of which involved concerns with environmental or health consequences of individual mining projects.

We coded each protest along various dimensions related to our theory, as shown in Table 5. The table reveals a few important patterns. First, two-thirds of the protests were against local mines (at or nearby the location of the protest), validating our emphasis on municipal-level politics. Second, only a slight majority of protests focused on existing mines, suggesting that both existing and new mining activity provoke grievances. Finally, and perhaps most importantly, instead of economic opportunity (demand for benefits), the most common issue raised in the protests was environmental degradation. As mentioned previously, the prevalence of environmental protests may reflect strategic, endogenous framing by the organizers who may draw on past success in building public support and accessing resources larger resource networks. Therefore, protest framing is likely a mix of sincere grievances and strategic considerations for maximizing support. Nonetheless, the very fact that the environmental frame is highly prevalent speaks to the importance of environmental grievances – as opposed to opportunity-motivated mobilization for increased revenue sharing from mining activities.

We also found support for our findings regarding the importance of resource mobilization by the civil society. All protests were organized through some form of civil society group, the majority of which were local, grassroots organizations created specifically to advocate around a particular mining project. These groups seemed to frequently draw upon connections with larger NGOs, civil society networks, and sometimes government allies to mobilize. Several higher-profile cases also involved national NGOs, such as Greenpeace in the case of Uranium mining in Caetité, Bahía, although even in these, grassroots organizations were still primary organizers. In addition to bringing in larger NGOs, many groups took advantage of opportunities such as large seminars or meetings organized by NGO networks to discuss mining issues and organize a public protest.
8 Conclusion

The origins of social protest have motivated a large body of research in both political science and sociology, but systematic empirical tests of different theoretical mechanisms remain rare and inconclusive. We have tried to assess the relative impact of various mechanisms, ranging from the classical grievance approach to variants that emphasize the role of resource mobilization capacity and political opportunity structures. The empirical results on anti-mining protests in Brazil show that the classic grievance approach can explain much of the variation in the likelihood of protest activity, but that the consolidation of these grievances into collective protests are conditional on the resource mobilization capacity of pre-existing, non-governmental organizations.

By first establishing the relevance of frames highlighting grievances (specifically environmental concerns) and then adding resource mobilization mechanisms, we provide new evidence on the relative explanatory power of the canonical theories in the field. We also demonstrate the benefit of employing quantitative and causally identified methodology to studying social protest. We do so in the rarely studied context of Brazilian anti-mining protests, exploiting a wealth of data on commodity prices, mineral deposits, socio-economic characteristics, and the properties of different protests.

The strong support for the resource mobilization hypothesis suggests a need to revisit and develop new theories that generate precise, falsifiable hypotheses about the conditions under which existing non-governmental organizations are able to mobilize resistance to natural resource extraction. We have shown that NGO presence conditions the effect of grievances on social protest, and a logical next step for this research agenda would be to develop and test hypotheses about municipal and organizational characteristics that predict such mobilization capacity.

At the same time, the partial evidence for political opportunity structures reveals a need to sharpen the predictions of this line of theorization. Why does political competition predict social mobilization in response to grievances, but local government partisanship and partisan alignment with Brazil’s federal government do not? While our empirical evidence does not support a generic formulation of the political opportunity structure theory, a variant that puts political competition front and center would be consistent with the patterns in the data.
Finally, our results highlight the potential for a productive area of research into the determinants of social conflict surrounding resource extraction. Applying our methodologies in similar contexts of growing social unrest over mining activities can verify the relative importance of environmental frames and organizational capacity in enabling social protests. If these mechanisms produce similar results in diverse contexts, this could also aid governments and mining promoters in establishing new mining policies. Specifically our results are suggestive that prioritizing the building of a social consensus and addressing environmental concerns may be more effective in reducing social tensions than policies aimed at the distribution of royalties.
References


**URL:** [https://dl.dropboxusercontent.com/u/16041354/ConcessionStands_DC.pdf](https://dl.dropboxusercontent.com/u/16041354/ConcessionStands_DC.pdf)


URL: http://www.vanderbilt.edu/lapop/insights/I0842en.pdf

URL: http://www.vanderbilt.edu/lapop/insights/I0893en.pdf


**URL:** [http://academiccommons.columbia.edu/catalog/ac:171770](http://academiccommons.columbia.edu/catalog/ac:171770)

Figure 1: Distribution of mining protests, 2000-2013. **Left:** Mining protests only; **Right:** Mining and environment protests.
Figure 2: Total mining deposits located within 10km of municipality.
Figure 3: Global commodity prices in real 2010 USD, World Bank Global Economy Monitor (GEM). For the regressions, the value of the commodity index is divided by 1,000 to make the coefficients legible.
Figure 4: **Left:** Mining related protests in Brazil per year. **Right:** Total protests in Brazil per year.
Table 1: Commodity prices, mining deposits, and protests against mining (narrow definition). All estimations are linear probability models with a dependent variable of the count of protests in a municipality-year.

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<tr>
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<td>Index:Coast</td>
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<td>Log Index:Log GDP</td>
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<tr>
<td>Log Index:Log Muni Area</td>
<td>0.001** (0.0005)</td>
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<tr>
<td>Log Index:Coast</td>
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</tr>
</tbody>
</table>

Year FE | Yes | Yes | Yes | Yes | Yes | Yes |
State:Index FE | No | No | No | Yes | Yes | Yes |
Municipalities | 5565 | 5565 | 5565 | 5449 | 5449 | 5449 |
Observations | 77,910 | 77,910 | 77,910 | 76,286 | 76,286 | 76,286 |
Adjusted R² | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |

Note: *p<0.1; **p<0.05; ***p<0.01
Table 2: Commodity prices, mining deposits, and protests against mining (broad definition). All estimations are linear probability models with a dependent variable of the count of protests against mining in a municipality-year.
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Year FE: Yes Yes Yes Yes Yes Yes
State:Index FE: No Yes Yes Yes Yes Yes
Municipalities: 5168 5168 5168 5168 5168 5168
Observations: 72,345 72,345 72,345 70,837 70,837 70,837
Adjusted $R^2$: 0.006 0.006 0.006 0.006 0.006 0.006

Note: *p<0.1; **p<0.05; ***p<0.01

Table 3: Mining protests on mayor’s margin of victory in most recent election, mining deposits, and commodity prices (triple interaction model).
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Note: *p<0.1; **p<0.05; ***p<0.01

Table 4: Mining protests on NGO presence (logged), mining deposits, and commodity prices (triple interaction model).
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</tbody>
</table>

Table 5: Characteristics of protests against mining ($N = 95$). A case was coded as ‘local mining’ if the protest specifically targeted a project in the municipality of project. A case was coded as ‘new mine’ if the activists protested against a completely new mine or the expansion of an existing project. The demand categories were based on analysis of the content of the grievances. ‘Benefits’ refers to a demand for resources; ‘environmental issues’ and ‘health issues’ are self-explanatory; ‘labor protest’ refers to union activism; ‘land loss’ refers to complaints about land-grabbing. The demographic indicators are based on a coding of whether indigenous peoples and/or Quilombola (black) population formally participated in the protest.