# Resistance Against Mining in Latin America:

## **Between Institutions and Protest**

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#### Introduction<sup>1</sup>

Mining activities in Latin America have increased dramatically over the past decades. While still one of the region's main drivers of economic growth, natural resource extraction often negatively affects the bases of livelihood and human health in host communities, and steep social inequalities persist despite economic growth. As a result, mining activities have led to widespread social resistance over the past years, contributing to the more general wave of protest that has challenged neo-liberal policies in Latin America (e.g., Arce 2014; Simmons 2016a; 2016b).

Yet, patterns of social resistance against mining projects differ considerably both within and across countries, as well as over time. While some regions, such as Potosi in Bolivia or Cajamarca in Peru, have experienced frequent protest, others (for example, Pasco in Peru), have mostly avoided large-scale social unrest. Moreover, the duration of protests varies considerably across different areas, raising the question why, once protest has erupted, it persists in some cases while fading in others. What explains these differences in the occurrence and duration of mobilization against mining projects?

Most existing empirical studies focus on why protest breaks out in the first place (e.g., Arce 2014, Mähler & Pierskalla 2015). Thus, they are ill suited to explain variation in the persistence of protest. By contrast, we explicitly distinguish between protest onset and continuation and evaluate the distinct determinants of both outcomes separately. First,

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conceiving of social protest as an important mechanism for signaling grievances (Tarrow 1994), we expect mining activities to contribute to the *outbreak* of protest activity as affected communities intend to communicate their dissatisfaction to state authorities. However, grievances might be less relevant for protest duration as other factors affect how the conflict unfolds, once protest has erupted, thus intervening in the relationship between (old and new) grievances and the duration of protest.

Second, we theorize the role of regional governments in compensating local populations for the (potentially) detrimental effects of mining activity through "policy side payments" in other domains. Specifically, we argue that the degree of "decentralized responsiveness" crucially affects the persistence of anti-mining protest. Regional governments with both the institutional capacity to autonomously enact policies and accountability towards their departmental populations are likely to implement policies in other domains, unrelated to mining, that offset the detrimental consequences of mining activities in order to mitigate local social unrest. Thus, even where regional governments have little influence over the occurrence of mining activities (and, thus, the onset of anti-mining protest), decentralized responsiveness allows *and* incentivizes these governments to compensate local populations for the damage incurred by mining. As a consequence, we expect decentralized responsiveness to reduce the likelihood of protest *continuation*.

This paper makes several theoretical contributions. First, it advances the debate on the impact of mining activities: While there is a wide literature on the relationship between mining activity and violent conflict (e.g., Berman et al. 2017; Hunziker and Cederman 2017), we know less about non-violent protest activity. More specifically, cross-country empirical studies of the contextual factors that affect variation in social protest across space and time are still scarce.

Arce (2014) has highlighted the potential role of regional party systems in fostering protest. His analysis is confined to the Peruvian case, however, and does not take into account institutional differences between regions. Likewise, Mähler and Pierskalla (2015) neglect institutionalized politics as a potential channel through which mining conflicts could be mitigated, thus reducing the occurrence and persistence of protests. Our analysis sheds light on institutional factors that explain mining-related protests from a cross-national perspective, and incorporates grievances. Second, we argue and show that to understand how institutionalized politics can mitigate protest, it is necessary to distinguish between initial eruption of protest, and its duration. More broadly, then, this paper contributes to an emerging literature on the interactions between social movements and state agents, insisting that the state should not be viewed as a unitary actor (Duyvendak and Jasper 2015; Jasper and Duyvendak 2015; Jasper and King 2020). We do so by highlighting the potentially diverging logics that guide governments at the regional and national levels. Furthermore, we situate our study in the literature on the wave of social movement mobilization that has swept the Latin American region since the late 1980s and that is closely linked to the politicization of ethnic identities.

In empirical terms, we introduce novel subnational data on mining activity and mining-related protests focusing on three countries – Bolivia, Peru, and Ecuador – between 2000 and 2013. We started out by constructing a dataset on mining activities at the regional level in our three countries. We then collected protest data based on a semi-automated selection and coding of the news media. Our study further improves on existing work by explicitly measuring protest related to mining, rather than general levels of mobilization or conflict.<sup>2</sup> We comine these protest

<sup>2</sup> The only other study we are aware of that collected data of this type is that of Mähler and Pierskalla (2015), although their main results pertain to protests in general.

data with fine-grained geocoded data on mining activities at various stages of production, as well as information on decentralization and regional government composition. Using this data, we distinguish between the factors that predict the *onset* of protest from those that explain its *continuation*.

We focus on the three Andean countries because they share important similarities in terms of the importance of the mining sector to the national economy, the multi-ethnic composition of their populations, and levels of development. This allows us to analyze variation in the occurrence and duration of anti-mining protest across subnational areas within a most-similar systems design. An advantage of this selection of countries is that it allows us to hold fiscal decentralization constant and to instead exploit variation between regional governments in terms of their competences and their accountability to popular preferences.

Our findings reveal the dynamic nature of mining conflicts, in which mining activity triggers the onset of protest, while the failure to compensate local populations for the incurred costs of mining activity results in sustained protest, enduring over more protracted periods of time. Overall, our results indicate that the interplay between the social movement and institutionalized arenas of politics decisively influences the persistence of anti-mining protest. Hence, while previous studies have emphasized the role of decentralization in enabling the mobilization of indigenous groups in Latin America (e.g., Yashar 2005; Van Cott 2005), our findings suggest that, at the same time, political decentralization constitutes an important tool of channeling such mobilization into institutionalized politics.

## Natural Resources, Mining, and Conflict

Natural resource extraction is one of the main pillars of Latin American economies. During the 1990s, four of the ten countries with the highest mining investments worldwide were Latin American (Bebbington et al. 2008). In Peru, for example, it is estimated that by now over 50% of all peasant communities are affected by mining activities (Bebbington and Williams 2008), and metal exploration has grown massively in other countries as well (e.g., Dougherty 2011). The consequences are profound. Environmentally precarious practices often result in negative externalities affecting the bases of livelihood and human health in the host communities (Bebbington and Williams 2008; Dougherty 2011). In addition, the penetration of these communities by mining companies has also been argued to have a disruptive social effect (Bury 2005). Scholars of various disciplines have set out to analyze the negative consequences of resource extraction and dependence – commonly summarized under the term "resource curse" (see e.g. Mehlum, Moene, and Torvik 2006; van der Ploeg 2011; Ross 2015) – and mining activities in particular (e.g., Dougherty, 2011, Bebbington et al. 2008, Arce 2014).

Social resistance against mining and its negative social and environmental externalities has become linked to the wave of social movement mobilization that has swept the Latin American region since the late 1980s. The transition from the Import Substitution (ISI) model to a new market-liberal consensus had an important negative impact on the economic prospects of relatively large groups of citizens, while the parallel process of re-democratization in many countries provided new associational space for protest against market liberalization (Yashar 2005). An early strand of research found social protest to be particularly frequent in settings where democratic openings were accompanied by economic liberalization that imposed material hardship on the population (Arce and Bellinger 2007; Roberts 2008; Silva 2009; Bellinger and

Arce 2011). The dual transition to democracy and market liberalism thus provided the basis for a massive surge in social movement activity, at first directed against neoliberal reforms in general, and increasingly with the more specific target of resource extraction.

The mobilization against economic liberalism in general and resource extraction in particular eventually fed into electoral change as well. Starting with Hugo Chávez' election in 1998, a "left turn" or "pink tide" swept Latin America, bringing left parties to power in much of the region (Weyland 2009; Panizza 2009; Levitsky and Roberts 2011b; Weyland, Madrid, and Hunter 2010). The countries we focus on in this paper tend to fall into the group of countries governed by the populist left (with Peru under Ollanta Humala being a dubious case), but Movimiento al Socialismo (MAS) in Bolivia is the only "movement left" party that cultivates extensive links to the countries' indigenous social movements (Levitsky and Roberts 2011a; Anria 2013; 2018; Anria and Cyr 2017).

Mobilization against resource extraction is intimately related to increased bottom-up mobilization of previously excluded groups (see e.g. Eckstein 2001; Eckstein and Wickham-Crowley 2012; Spalding 2014; Silva and Rossi 2018). In this process, unions as the traditional agents of mobilization from below were significantly weakened and displaced by new actors (Silva 2009; Roberts 2002; Anria and Niedzwiecki 2016). Furthermore, in countries with substantial indigenous populations, the politicization of ethnic identities and the rise of indigenous social movements were key to enabling mobilization from below (Yashar 2005; Simmons 2014).<sup>3</sup> Since natural resources in Latin America are often found in peripheral rural areas inhabited by indigenous and African-descendant communities, much anti-mining

That said, the availability of non-indigenous organizations, such as dissident unions, churches and NGOs as allies has been seen as a key factor in the political opportunity structure of such movements (Brysk 1996; Madrid 2012; Rappaport 2005; Yashar 2005; Silva 2009).

mobilization has rallied around resources, such as water and communal land, that are closely tied to the ethnic identity of these groups (Mähler and Pierskalla 2015; Simmons 2016a; 2016b). This has allowed movements to overcome the collective action problem emphasized by the classical literature (Olson 1965; Offe and Wiesenthal 1980; Pizzorno 1986; Melucci 1995; 1996).

From the perspective of an important strand in social movement research, not only do collective identities play a key role in enabling protest, but also political opportunity structures (McAdam 1982; Tarrow 1994; Tilly 1978). Kriesi et al. (1995) demonstrate that more open institutional structures encourage protest. In line with this theorizing, Quaranta (2013) shows with respect to Western Europe that decentralization increases protest because it provides movements with additional access points to influence decisions. In this paper, we nuance these arguments by focusing on the interplay between regional governments and protest triggered by the grievances produced by mining. Relaxing the assumption that states are unitary actors, as insisted on in recent theorizing in social movement research (Duyvendak and Jasper 2015; Jasper and Duyvendak 2015; Jasper and King 2020), regional governments may play a more important role in mitigating protest than is generally assumed. What is more, the recent literature has emphasized that the downplaying of grievances as the root cause of mobilization may have been excessive (e.g., Hunziker and Cederman 2017). We therfore include both grievances and institutional variables in the model we develop to explain protest related to mining.

#### **Decentralization**

The process of decentralization in Latin America forms part of a larger shift towards regional (as well as supranational) governance (Hooghe and Marks 2016). This potentially results in conflict between governments situated at the regional and the national levels (Eaton 2017). More

generally, the literature on decentralization in Latin America has tended to focus on the negative sides of this process. Decentralization has substantially weakened party systems in Latin America, eroding the hold of national parties in sub-national elections (Morgan 2018). The proliferation of regional parties that lack links to the national political center means that parties contesting regional elections do not provide adequate points of access to shape policy (Arce 2014, 54–65). Arce's argument is that the fragmentation of regional party systems makes it more difficult for regional governments to provide common goods, thereby fostering protest. Furthermore, it has been suggested that decentralization can exacerbate the impact of natural resources on protest behavior. Arellano-Yanguas (2011), for instance, claims that fiscal decentralization has actually fuelled local conflicts over natural resource extraction in Peru, particularly regarding the use and distribution of mining revenues. Fiscal federalism may also harm democracy at the substate level by making those subnational units that benefit from redistribution – the "rentier" states – less depending on and, thus, less accountable to their populations (Gervasoni 2010). We build on and extend these insights by emphasizing the role of varying degrees of decentralized responsiveness – as the extent to which regional governments are able to mitigate grievances, or to compensate local populations for damages incurred as a consequence of mining activities.

## **Arenas of Social Conflict: Explaining Protest Onset and Continuation**

Building on the literature on the externalities of resource extraction discussed above, and mining activities in particular (e.g., Li 2015), our baseline hypothesis postulates that grievances related to mining trigger protest. Because grievances are difficult to measure directly, we use the overall volume of mining activity in a department as a proxy for popular grievances, and, by implication,

the potential for protest. This leads us to expect that subnational regions where more mining activity is concentrated are more likely to experience protest:

H1: The more mining activity in a department, the higher the likelihood of protest.

Protest has become an important mechanism for signaling grievances in the democratic political process around the world (Tarrow 1994). The key question then becomes whether political actors respond to the signal provided by protestors, or whether they fail to do so. More specifically, governments can mitigate grievances by compensating local populations for the damages incurred due to the environmental and social externalities of mining. We argue that in decentralized polities, the incentives of national and regional authorities differ in this respect. Regional governments are more proximate to local populations than national governments, and some of them have the capacity to issue side payments to local populations. This can foster a broader consensus in favor of continued mineral exploitation. The national political level, on the other hand, is not only more remote, but also highly dependent on the fiscal resources generated by extractive activities. A substantive part of the benefits of mineral exploitation accrue at the national level, while the externalities are mostly borne out in the region where exploitation occurs. Consequently, the stronger the ability and willingness of regional governments to mitigate these negative consequences, the less likely are we to see continued protest.

Our view on decentralization partially clashes with the literature on social movements, which insists that the openness of the political system fosters social movement activity (Kriesi et al. 1995; Arce and Bellinger 2007; Roberts 2008; Silva 2009; Bellinger and Arce 2011).

Decentralization could thus fuel protest activity, rather than depressing it, as Quaranta (2013)

and the continuation of protest. In line with the dominant view, we argue that decentralization has no effect on *protest onset*, due to the latter's role as a signalling mechanism. Indeed, more open political systems at the regional level may offer opportunities for protestors to voice grievances, thereby potentially increasing initial protest. But while some protests endur, others ebb after the initial mobilization. We argue that where regional governments not only have the incentives to respond to protestors, but also the capacity to strike a better balance between the detrimental and the beneficial effects of mining, they make *protest continuation* less likely.

We use the term *decentralized responsiveness* to denote the combination of regional governments' incentives to respond to protest and their institutional capacity to do so. Following Hooghe et al. (2016), we conceive of regional autonomy as a multidimensional concept, and identify policy scope, institutional depth, and representation as the most important among the dimensions they theorize. These dimensions pertain to regional governments' *competences* to decide on policies as well as their *accountability* to regional parliaments. The effect of decentralized responsiveness on protest continuation thus operates via two mechanisms. First, regional governments that are held accountable by regional governments should be more attentive to grievances politicized by protestors. Contrary to executives appointed by national administrations, they depend on voter support for political survival. Second, regional governments with more competences in policy-making have a higher capacity to actually respond to the demands of local communities – either by reducing the negative externamities engendered by mining, or by issuing side payments to compensate local populations for the

damage suffered.<sup>4</sup> Because regional authorities generally do not have much authority in negotiating licenses with mining companies (e.g., Arellano-Yanguas 2011), we deem these side payments to be particularly important in making continued exploitation acceptable to local populations, thereby dampening protest. Regional governments with sufficient decision-making power may thus play an important role in securing the societal support that prior qualitative research has shown to be crucial in allowing mining projects to move forward (Bebbington and Bury 2013; Eaton 2017, 15).

As we argued above, we do not expect decentralization to reduce the likelyhood of protest erupting in the first place. Mining not only creates important grievances, it is also the rather distant national bureaucracies that play the dominant role in negotiating with mining companies.<sup>5</sup> But once local communities, environmentalist groups, or indigenous organizations have mounted a challenge to the basic parameters of extraction, the question becomes whether regional governments seek accommodation and enact measures to compensate these groups, or not. We argue that decentralized responsiveness is crucial here, and that its absence helps to explain why the reallocation of revenues from mining activities to lower levels of government by itself does not necessarily reduce conflict. It is only when regional governments have real decision-making power that they should be able to mitigate conflict.<sup>6</sup> This leads to our second hypothesis:

H2: The stronger decentralized responsiveness in a region, the lower the chances of a *continuation* of anti-mining protest.

We build here on the literature on bargaining and its applications in political science (Kennan and Wilson 1993; Fearon 1995; Walter 2009).

<sup>5</sup> See United States Geological Survey (USGS) country reports (<a href="https://www.usgs.gov">https://www.usgs.gov</a>) and Hooghe et al. (2016).

<sup>6</sup> In the absence of decision-making power, regional governments may either ignore protests, or even join forces with protestors. After all, in this case, policy change can only come from the national government. Regional governments with limited decision-making power may thus even become external alliance partners for social movements (c.f., McCarthy and Zald 1977; Klandermans 2001), therby fuelling protest.

#### **Additional Factors**

Of course, decentralization is not the only driver of mining protest. Resource exploitation tends to affect indigenous and African-descendent communities much more directly than other segments of the population in Latin America (see, e.g., Haller et al. 2007; Sawyer and Gomez 2012b; Stonich 2001). This is also true of our three countries, which exhibit what are among the highest shares of indigenous populations in the region. Many studies argue that social mobilization and protest in the context of natural resource extraction occur where ethnic identities, indigenous territories, and ancestral lands become intensely contested, and where grievances related to collective identities are mobilized as a result. Mähler and Pierskalla (2015), for example, argue that natural resource extraction can act as an important catalyst in the contentious politicization of ethnic identities more generally and of territorialized indigenous identities in particular. In a study of Bolivian provinces 2000-2011, they find that the share of the indigenous population in a department increases levels of violent and non-violent social conflict in the presence of lucrative natural resources – in their case, gas – but not otherwise.

The presence of indigenous communities in a region has ambiguous consequences for political protest, however. On the one hand, the presence of indigenous movement organizations and peasant unions as alliance partners fosters the capacity to build trans-local networks that are essential to collective action, in line with resource mobilization theory (e.g., Silva 2009). On the other hand, the countries in our sample differ dramatically in the strength of their ethnic social movements, with much stronger movements having emerged in Ecuador and Bolivia than in Peru, where mobilization has remained regionally fragmented (Yashar 2005; Van Cott 2005; Rice 2012). For this reason, we do not expect the presence of indigenous or African-descent groups in a region to be clearly related to protest.

Our brief review of the "left turn" in Latin America has emphasized the heterogeneity of the left in Latin America. With the possible exception of the election of MAS in Bolivia in 2005, we do not expect strong differences based on the ideological leaning of governments.<sup>7</sup> It is true that left-wing governments in Bolivia and Ecuador differed on the neoliberal vs. statist dimension (Bury 2005; Eaton 2017): While governments in Peru have consistently implemented a neoliberal policy framework (even under Humala's 2011-2016 administration), Ecuador and Bolivia have adopted state-centered development models under presidents Evo Morales and Rafael Correa. At the same time, it is unclear whether the state-centered model has really changed the national government's approach to mining (Silva 2018). We argue that, if anything, leftist governments have had an impact on extractive policies by pushing decentralizing reforms that allow regional governments to enhance the benefits while reducing the externalities of mining activity.<sup>8</sup>

## **Empirical Approach**

Case Selection

Our empirical approach follows a most-similar system design, focusing on the three Andean countries Bolivia, Ecuador, and Peru between 2002 and 2013. Our unit of analysis is the department-year. Overall, there are 59 departments in these three countries (26 in Peru, 24 in Ecuador, and nine in Bolivia). Our approach allows us to examine the relationships between mining activities, decentralized responsiveness, and anti-mining social protest at the subnational

<sup>7</sup> Because our research design exploits sub-national variance, rather than variation across countries, we refrain from testing the plausible claim that MAS is different from other parties.

<sup>8</sup> We refrain from controlling for the presence of left-wing populist government parties in our models because this would lead to multicollinearity with our decentralization measure and because decentralization is closer to the causal process of institutional conflict mitigation than the ideological leaning of governments.

level in a set of highly similar countries. All three countries contain a relatively high percentage of indigenous people who inhabit parts of both the highlands and the Amazonian lowlands. They exhibit similar levels of development (although Bolivia is poorer in macro-economic terms than the other two Andean countries), and mining constitutes an important driver of the national economy in all three countries. Hence, going beyond the common single-case studies (e.g., Arce 2014; Mähler and Pierskalla 2015), our approach strikes a balance between generalizability and minimizing unit heterogeneity. Moreover, given that fiscal autonomy for departments does not exist in any of these three countries, we can keep this intervening variable constant while exploiting variation in the competences of departments and the degree of subnational citizen representation both across countries and over time.

#### Protest Data

We introduce new data on anti-mining social protest in Bolivia, Peru, and Ecuador from 2002 to 2013. Imporantly, the events covered in our data are specific to protest against mining. This allows us to test whether regional governments' ability to design and implement policies in *other* domains (such as regional sustainable development) can mitigate mining conflicts through "policy side payments" in non-mining related areas. We selected newswire reports from all news agencies included in LexisNexis concerning protest related to mining activities (including hydrogenics) in the abovementioned time period. After retrieving over 2 million potentially relevant articles from LexisNexis based on keywords, we pre-selected a sample of 36'000 newswire articles using a machine learning approach. The final selection of articles was done by

<sup>9</sup> Because anti-mining protests constitute relatively rare events, our priority was not to miss any relevant articles. In designing the machine learning approach, we therefore gave priority to avoiding false negatives, rather than false positives.

human coders, based on a random sample of 50% of these articles that were identified as potentially relevant in the machine learning approach. A team of four research assistants then hand-coded a total of 883 protest events using a detailed codebook that includes the location of the protest, the mine against which the protest was directed, protestors' motivation and goals, as well as a host of additional variables that we do not use in this paper. Because potentially several reports pertain to the same protest event, we identified unique events as protests taking place on the same day, in the same department, and that share the same target or motivation (for example, the repeal of a national law). We then aggregated these protest events at the department level and generated a variable that counts the number of event-days per department and year. Because this variable is heavily skewed, our main results are based on a dichotomous variable indicating whether protest occurred in a given department in a given year. However, we use the variable counting event-days as an alternative dependent variable to test the robustness of our results.

Figure 1 aptly illustrates the importance of distinguishing between the onset and continuation stages of anti-mining conflict. The left-hand side of the figure shows the share of departments in a given year experiencing the outbreak of a new protest, while the right-hand side refers to the share of department-years in which a protest from the preceding year continued into the current year. The two histograms reveal considerable variation at both stages. Most importantly, the likelihood of a given protest to continue from one year to the next at any point is

<sup>10</sup> The *target* of a particular protest event can be a mining company, local mine operator, local government, regional government, national government. The variable *motivation* indicates the reasons stated in the article for the protest (e.g., water pollution, etc.).

<sup>11</sup> Because we coded a random sample of 50% of the potentially relevant articles, our variable measuring event-days is a proxy for the effective number of protest days in a department. Due to the very large random sample, we are confident that our variable exhibits a linear relationship to the effective number of protest days. What is more, most of our analyses are based on a dichotomous variable indicating whether protest occurred in a given department in a given year or not.

just over 50%. In other words, almost as many incidents of protest end within a single year as there are protests that last multiple years. This variation – and the potentially different causes of onset and continuation – can only be explored by explicitly distinguishing between the two stages.

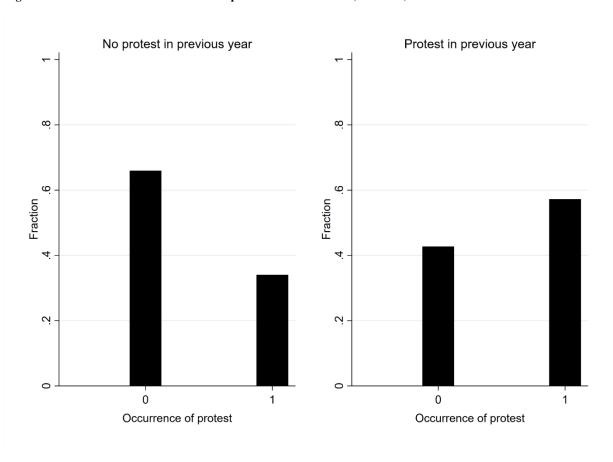


Figure 1: Occurrence of new and continued protest events in Bolivia, Ecuador, and Peru

## Mining Data

We constructed a novel dataset on mining activities at various stages of production in Bolivia, Ecuador, and Peru between 2000 and 2013, based on two sources: the U.S. Geological Survey's (USGS) online Minerals Yearbooks and a custom extract for Latin America from InfoMine. Our dataset records the total number of mining sites listed in these two sources in each department-year. Whereas the USGS Minerals Yearbooks only include mines that are in operation in a given year, InfoMine also contains information on closed mines, as well as mining exploration activities: i.e. mining sites that are not in operation yet, but under planning or construction.

Combining these two datasets allows us to go beyond existing studies by including mining sites in the pre-production stage (including off-site and on-site planning, exploration, minor digging, feasibility studies, construction, etc.) and thus gaining a more fine-grained understanding of the relationship between (early-stage) mining and protest. We determined the location of mining sites based on information contained in the two sources. Overall, the dataset includes 764 mines in the three countries.

Figure 2 maps all mines included in our dataset and their production stages (preproduction, active, and post-production) in 2013 in our three countries. It shows that even in the
last year of our sample period, there was considerable variation in the extent of mining activities
across different departments within the three countries. To evaluate the effect of mining on the
occurrence and duration of anti-mining protest at the subnational level, we use the total number
of all mining sites in each department-year as a measure of the intensity of mining activities.
This variable ranges from 0 to 54, with a mean of 10.8. In our statistical models, we use a logged
version of this count variable to account for skewness.

<sup>12</sup> For a small number of mining sites, which we were unable to assign to a department, we relied on data from Haslam and Tanimourne (2016). Overall, 86.3% of all mining sites could be assigned to a department.

Figure 2: Mining activities in Bolivia, Ecuador, and Peru in 2013



Notes: Graph shows the location of the mining sites included in our dataset in Bolivia, Ecuador, and Peru and their production stages in 2013. Black dots refer to active mines, dark grey dots to mines in pre-production stage, and light grey dots to post-production sites.

## Decentralized responsiveness

To capture the degree of decentralized responsiveness, we rely on the dynamic measure provided by Hooghe and colleagues (Hooghe et al. 2016; Hooghe and Marks 2016). We combine four indicators that form part of their five-dimensional measure of *self-rule* (Hooghe and Marks 2016, 36–37) to construct our overall measure of decentralized responsiveness. Two of these correspond to what we call the competences of a regional government: (1) *institutional depth* measures the extent to which regional governments can take autonomous policy decisions (or are subject to central government veto); (2) *policy scope* taps the range of policy domains over which a regional government exerts authority.

The other two indicators refer to accountability: (3) *representation* measures whether a regional legislature exists and whether it is elected by popular vote, and (4) *elected executive* indicates the extent to which the region's executive is autonomously elected (rather than appointed by the central government, as was the case in Bolivia until 2005, where the *prefectos* were not directly elected). We combine (1) and (2) into a measure of the *competences* of a regional government, which ranges from 1 to 5 in our sample, and (3) and (4) into a measure of its *accountability* to a regional legislature and, by implication, the population at large (ranging from 0 to 4).<sup>13</sup> Our overall indicator of decentralized responsiveness constitutes the sum of these two components and ranges from 1 to 9 in our sample.

<sup>13</sup> We leave aside Hooghe et al.'s (2016) indicators of a regional government's fiscal and borrowing autonomy because the capacity of regional governments to compensate local populations for damages incurred by mining depends on the type of policies that regional governments adopt, and not whether the resources come from the national government in the form of mineral rents, or are derive from autonomous taxation.

#### Control Variables

Our models include five sets of control variables to account for factors that might affect both the occurrence of mining and anti-mining social protest. First, we control for socio-economic differences at the subnational level, using department-level data from the year 2000 on poverty rates and inequality (measured by the Gini coefficient) from Bruhn and Gallego (2012). We also control for departments' latitude (in absolute numbers) and logged altitude, which should capture their aptitude for agriculture and/or mining activities, as well as the percentage of indigenous people from Bruhn and Gallego (2012). Second, Arce (2014) argues that in Peru, regional parties have been less effective in providing local populations with public goods than national parties – fostering anti-mining protest. We account for this factor with a variable that measures whether a regional government is headed by a national or a regional party (or party alliance).<sup>14</sup>

Third, distinct historical experiences might affect department-level differences in the occurrence of both mining and anti-mining social protest. Therefore, we include a dummy variable whether the Spanish colonizers relied on indigenous forced labor in a given department during the colonial period. We also control for the year in which a department became included in the colonial empire, defined as the first year that a governor or mayor began governing the department. Both of these variables stem from Arias and Girod (2014). Given that colonial policies partly relied on pre-existing conditions, we also control for the level of pre-colonial development, using an indicator of pre-colonial population density from Bruhn and Gallego (2012).

<sup>14</sup> Note that Arce uses a regional party system fractionalization measure as an indicator of the proliferation of regional parties, which is less precise than our measure of the actual rule of regional parties.

Fourth, we consider a number of time-variant political factors at the national level that capture relevant differences in the opportunity structure for both mining activities and antimining social protest. We account for the institutional strength of political parties, political freedom, and corruption, using the party institutionalization, liberal democracy, and regime corruption indicators, respectively, from the V-Dem dataset (Bizzarro, Hicken, and Self 2017; Coppedge et al. 2015; Sigman and Lindberg 2017). Finally, we also control for national-level GDP per capita and annual GDP growth, drawing on the Maddison Project Database (Bolt et al. 2018).

### Model Specification

Our theoretical argument highlights the distinction between protest outbreak and duration. Following studies of civil war incidence (Boix 2008; Sambanis 2004), we rely on dynamic logit models to simultaneously estimate the determinants of protest onset and continuation. Treating protest occurrence as a Markov transition process, these models allow us to estimate the effects of our explanatory variables on the likelihood of protest onset or continuation at time t, depending on the occurrence of protest at time t-1.

Given the small number of countries (and subnational units within countries) included in the study, we refrain from using country-fixed effects in our main models. Instead, our most-similar systems approach allows us to exploit the full variation in our key explanatory variables across sub-national units within the three highly similar Andean countries. Nevertheless, we also present robustness tests with country-fixed effects. In addition, we also show Weibull regressions that model the duration of protest once initiated. These models are limited to departments that experienced at least one outbreak of anti-mining protest during our time period (51 out of all 59).

departments). Since different observations for the same department are likely to have similar variances, we use Huber-White standard errors clustered on departments in all models.

## **Empirical Results**

Table 1 presents the results of our main models. Model 1 includes the count of the total number of mines in a given department-year and our overall indicator of decentralized responsiveness as the key explanatory variables. The results provide support for both hypotheses H1 and H2. The more mining activity in a given department, the higher the likelihood of both protest onset and continuation. The effect is slightly stronger, but also less precisely estimated (and only significant at the 90% confidence level) in the case of protest continuation. This seems intuitive given that grievances should be particularly relevant at the early stage of mobilization, functioning as a push factor for communities to engage in protest in the first place. While these same grievances likely play a key role in keeping protest activity going, once protest has erupted, a number of other dynamic factors will affect how the conflict unfolds, thus intervening in the relationship between (old and new) grievances and the duration of protest.

The effect of our key institutional variable exhibits even more variation between the onset and continuation stages of conflict. The coefficient is statistically insignificant and close to zero in the onset equation, but the variable displays a strong and statistically significant negative effect on protest continuation. Thus, in line with our expectations, higher levels of decentralized responsiveness decrease the likelihood of protest continuation while its effect on the initial

<sup>15</sup> An individual department may experience several protest onsets (and thus enter the duration analysis multiple times). Protest duration ranges from one to eleven years in our sample, and the maximum number of protest terminations (i.e. "failures") is four.

likelihood of protest outbreak is negligible. In other words, whereas mining activities likely spur social resistance, independent of regional governments' ability and willingness to compensate the affected population for potential damages, the latter can subsequently help mitigate social unrest through "policy side payments".

By contrast, we find no difference in the likelihood of either protest outbreak or continuation in departments governed by regional parties compared to those governed by national parties. Thus, contrary to Arce's (2014) findings, when extending the analysis beyond the single case of Peru, national parties do not seem superior to regional parties in managing mining conflicts. Similarly, while Mähler and Pierskalla (2015) find an association between the size of indigenous communities and protest activity in Bolivia during the same time period, our analysis casts doubt on whether this finding applies to other countries in the region. The indicator of the percentage of indigenous people remains insignificant in all our models.

Furthermore, we find a significant positive effect of within-department inequality on protest onset, further testifying to the importance of grievances in spuring anti-mining mobilization. Unsurprisingly, departments located in higher altitudes are also more likely to experience protest onset, given that most mining activites are concentrated in the three countries' Andean highlands. Interestingly, both higher levels of democracy and party institutionalization tend to fuel anti-mining protest in our three countries. Thus, democratic liberties at the national level tend to facilitate the persistence of social protest while stronger national-level parties seem to be unable to absorb social grievances, being associated with more and more lasting protest activity. Finally, departments that were colonized later were less likely to experience anti-mining protest. This can probably partly be explained by the fact that Spanish colonization focused on

Table 1: Mining and protest. Regression results

	Model 1		Model 2		Model 3	
	Onset	Cont.	Onset	Cont.	Onset	Cont.
N mines (logged)	.29*	.35+	.29*	.33+	.28*	.35+
	(.13)	(.18)	(.13)	(.18)	(.13)	(.18)
Decentralized	04	72***				
responsiveness	(.08)	(.17)				
Regional competences			11	-1.39***		
			(.18)	(.33)		
Regional accountability					04	-1.40***
					(.15)	(.34)
Regional party in reg.	.31	.12	.32	.08	.30	.14
government	(.40)	(.47)	(.39)	(.45)	(.40)	(.48)
Altitude (logged)	.48**	.11	.48**	.14	.47**	.07
	(.17)	(.25)	(.17)	(.25)	(.17)	(.25)
Latitude	.04	11	.04	12	.04	09
	(.05)	(80.)	(.05)	(.08)	(.05)	(80.)
% indigenous population	01	00	01	00	01	00
	(.01)	(.02)	(.01)	(.02)	(.01)	(.01)
Poverty	.23	25	.21	30	.24	20
	(.28)	(.45)	(.29)	(.45)	(.28)	(.45)
Gini	2.55*	1.64	2.54*	1.50	2.56*	1.78
	(1.10)	(1.59)	(1.11)	(1.61)	(1.10)	(1.57)
Colonial forced labor	47	.21	47	.14	48	.28
	(.55)	(.75)	(.55)	(.75)	(.55)	(.74)
Historical population	12	15	12	13	12	16
density	(.13)	(.17)	(.13)	(.17)	(.13)	(.17)
Colonial settlement year	02**	02	02**	02	02**	02
	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)
Party institutionalization	7.23*	7.76**	7.54*	9.41**	7.04*	5.94*
	(3.33)	(2.95)	(3.42)	(3.06)	(3.27)	(2.87)
Liberal democracy	4.16	7.94*	4.13	6.98*	4.15	8.93**
	(3.10)	(3.19)	(3.11)	(3.22)	(3.10)	(3.20)
Regime corruption	4.38	-1.72	4.33	81	4.42	-2.19
	(3.25)	(4.17)	(3.23)	(4.01)	(3.26)	(4.26)
GDP per capita	.00*	.00**	.00*	.00**	.00*	.00**
	(.00)	(.00)	(.00.)	(.00.)	(.00)	(.00.)
GDP growth	-1.81	0.37	-1.62	0.25	-1.96	.18
	(3.89)	(4.40)	(3.89)	(4.42)	(3.88)	(4.39)
Constant	28.23		22.79		32.42	
	(3	5.71)	(3	(35.69)		(37.24)
N	608			608	608	
Log likelihood	-328.18***		-328.56***		-328.08***	

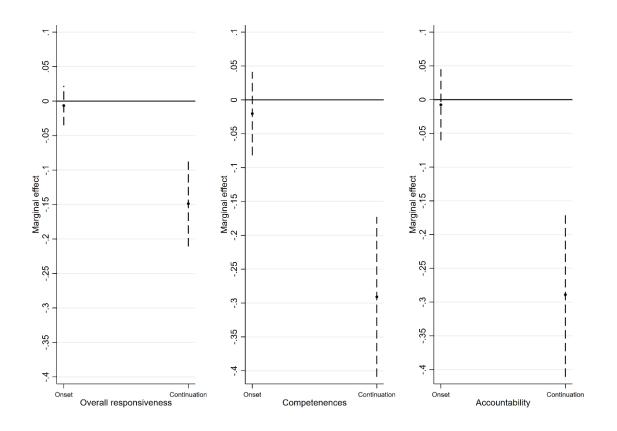
Notes: Robust standard errors clustered on departments in parentheses. \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. + p < 0.1.

the most resource-rich areas early on, which are still the departments where both mining activities and anti-mining protest occur today.

Models 2 and 3 replace our overall indicator of decentralized responsiveness by the two components of regional competences and accountability, respectively. We refrain from including the two variables in the same model because, as expected, the two are highly correlated (r = .85, p = .000). The results of these models confirm our expectations. Both components exhibit a strong and statistically significant negative effect on the duration of anti-mining protest activity. Figure 3 plots the marginal effects of the two variables, as well as the effect of the overall indicator, on both protest outbreak and continuation, based on Models 1-3. It shows that a unit change in both indicators of regional competences and accountability is associated with an almost 30% lower likelihood of conflict persistence. Due to its larger scale, the decrease is smaller in the case of the overall indicator.

In summary, both the policy competences that regional governments possess and institutionalized mechanisms of accountability of these governments towards their departmental population are key in mitigating mining conflicts once they erupt. While far-reaching competences allow regional governments to compensate the affected population for potential damages from mining by autonomously implementing policies in other domains, unrelated to mining, established mechanisms of accountability ensure that governments actually make use of these competences. This provides strong support for our hypothesis H2.

Figure 3: Effects of decentralized responsiveness on protest onset and continuation



Notes: Based on Models 1-3 in Table 1, using the "margins" command in Stata 15. Graph shows the marginal effects of the three decentralization variables on the likelihood of protest onset and continuation. All other variables held constant at observed values.

To check the robustness of our results, we include country-fixed effects in Models A1-A3 in Table A1 of the appendix (while dropping the relatively time-invariant GDP per capita variable). Moreover, Models A4-A6 in Table A2 replicate Models 1-3 of Table 1, limiting the analysis to department-years with at least one mining project recorded in our dataset. Our results remain robust. Finally, given our finding on the important role of decentralized responsiveness in protest *continuation*, in particular, Table 2 presents the results of Weibull regressions that model

Table 2: Mining and protest continuation. Weibull regressions

	Model 4	Model 5	Model 6	
N mines (logged)	04	04	03	
	(.07)	(.08)	(.07)	
Decentralized responsiveness	.32** (.11)			
Regional competences		.68** (.22)		
Regional accountability			.57** (.22)	
Regional party in reg. government	15	14	16	
	(.23)	(.23)	(.23)	
Altitude (logged)	06	08	05	
	(.10)	(.10)	(.10)	
Latitude	.03	.04	.02	
	(.03)	(.04)	(.03)	
% indigenous population	.00	.00	.00	
	(.01)	(.01)	(.01)	
Poverty	19	15	23	
	(.24)	(.24)	(.24)	
Gini	44	40	49	
	(.64)	(.65)	(.64)	
Colonial forced labor	.00	.04	02	
	(.28)	(.28)	(.28)	
Historical population density	.04	.04	.05	
	(.06)	(.06)	(.06)	
Colonial settlement year	.01	.01	.01	
	(.01)	(.01)	(.01)	
Party institutionalization	-3.98 <sup>+</sup> (2.08)	-5.07* (2.21)	-3.00 (1.98)	
Liberal democracy	-1.78	-1.32	-2.15	
	(1.77)	(1.78)	(1.78)	
Regime corruption	4.14 (2.52)	4.10 <sup>+</sup> (2.46)	3.96 (2.53)	
GDP per capita	00 <sup>+</sup>	00 <sup>+</sup>	00 <sup>+</sup>	
	(.00)	(.00)	(.00)	
GDP growth	-3.52	-3.67	-3.26	
	(2.63)	(2.64)	(2.62)	
Constant	-17.73	-16.04	-18.83	
	(16.44)	(16.37)	(16.60)	
p	1.14***	1.15***	1.13***	
	(.10)	(.10)	(.10)	
Subjects	50	50	50	
N (years at risk)	373	373	373	
Log likelihood	-111.11 <sup>+</sup>	-110.84*	-111.49 <sup>+</sup>	

Notes: Robust standard errors clustered on departments in parentheses. \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. + p < 0.1.

the hazard of protest termination, once protest has erupted, as a function of the same right-hand side variables as in Table 1.

The results of Models 4-6 reveal a negative effect of the amount of mining activities on protest termination, yet the coefficient is not significantly different from 0. This provides further evidence that grievances play a more important role in spurring the outbreak of protest that at later stages of ongoing conflicts. By contrast, we find a statistically significant positive effect of our three institutional variables on the likelihood of protest termination. Thus, the more competences regional governments possess and the more accountable they are towards their departmental populations, the more likely it is that ongoing anti-mining protest activity comes to an end. An increase in our overall indicator of decentralized responsiveness from the 5<sup>th</sup> to the 95<sup>th</sup> percentile (i.e. from a value of 3 to 9) is associated with a decrease in the predicted median protest duration from about 12 years to just over two years (based on Model 4 in Table 2). These results confirm that institutional mechanisms that provide both leeway *and* electoral incentives to regional governments to address local grievances can play a key role in mitigating mining conflicts.

#### **Conclusions**

The dramatic expansion of mining activities has resulted in a rise of conflict related to mining. Meanwhile, a substantive literature has emerged on the contextual determinants of conflict triggered by mineral exploitation. Much of this work has focused on violent conflict, however, and less on protest activity that is explicitly directed against the externalities caused by mining. It is when focusing on the politicization of grievances caused by mining that the interplay between the institutionalized and the protest arena becomes important. Although the political process

approach in social movement research is well established, empirical work on the interaction between the institutionalized and political protest arenas is – with a few exceptions (e.g., Kriesi et al. 1995; Hutter 2014; Hutter, Kriesi, and Lorenzini 2018; Arce 2014) – still in its infancy.

We argued in this paper for the role of regional governments in explaining why certain protests against mining activity ebb, while others continue over longer periods of time. Natural resource exploitation tends to provide fiscal resources for national governments and economic growth for countries as a whole, while many of the negative externalities of this industry are borne out by local populations. We use the term decentralized responsiveness to denote the extent to which regional governments have both the incentives and the institutional autonomy to respond to concerns voiced by anti-mining protest. While regional governments have no strong role in the negotiations with mining companies, we argue that they are able to compensate local populations for some of the incurred costs of mining activity by issuing side payments in policy areas not directly related to mining. Relying on newly collected data that focuses explicitly on protest directed against mining, and covering three countries that share important commonalities, we find that while grievances trigger initial protest, regions exhibiting higher levels of decentralized responsiveness are less likely to see protests continue. Social movement scholars have emphasized the role of decentralization in enabling the mobilization of indigenous groups in Latin America (e.g., Yashar 2005; Van Cott 2005). Our findings suggest that decentralized responsiveness constitutes an important mechanism to channel mobilization into institutionalized politics after opposition against mining activities has emerged. This dovetails with arguments from the civil war literature that emphasize the conflict-mitigating potential of federalism and decentralizing institutions (e.g., Bakke 2015; Brancati 2009; Cederman et al. 2015).

Our argument is distinct from those pertaining to fiscal federalism and the finding that distributing resources to the regional level may actually exacerbate conflict. Our research design holds fiscal federalism constant and thus allows us to disentangle its effects from those of real decision-making competences at the regional level, and the institutional incentives to use these to compensate local populations for damages incurred as a consequence of mining activities. We further show that the institutional logic of conflict is embedded in a temporal dynamic, which we are able to capture by differentiating between the onset of protest and its continuation into the next year. Because protest plays an important role in signaling grievances to regional policy-makers, decentralized responsiveness does not affect the initial outbreak of protest. It is only after initial mobilization in the social movement arena that differences between regional governments play out in the institutionalized arena of politics.

Our findings are based on a most-similar system design including three countries that share important commonalities in terms of the significance of the mining industry to economic development, and featuring significant shares of indigenous people. Moving beyond a single country study, we cannot replicate the results of Arce (2014) and Mähler and Pierskalla (2015), suggesting that it is important to look at more than one country. Hence, we found no effect of the presence of regional parties in sub-national governments (which we were able to measure in greater detail than before), or of the share of the indigenous population in a region. While the present most-similar-systems design is an important step in generating more generalizable results, a better understanding of the country-level characteristics that might shape protest requires analyses including an even larger set of countries. For example, we have not been able to test whether the ideological leaning of governments shapes their responses to the grievances

caused by mining, and whether they see distinctive dynamics of conflict between different levels of government that may affect protest activity.

These limitations notwithstanding, we have provided new evidence for the importance of institutional factors in shaping the politicization of grievances related to mining. Furthermore, our differentiation between the onset and the continuation of protest sheds light on the interplay of the institutional and protest arenas of politicy. These factors have so far not received the attention they deserve in the burgeoning literature on conflicts triggered by natural resource exploitation.

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# Appendix

Table A1: Robustness tests including country-fixed effects

	Model A1		Model A2		Model A3	
	Onset	Cont.	Onset	Cont.	Onset	Cont.
N mines (logged)	.25 <sup>+</sup> (.13)	.35* (.16)	.25 <sup>+</sup> (.13)	.37* (.17)	.25 <sup>+</sup> (.13)	.33* (.16)
Decentralized responsiveness	.02 (.08)	78*** (.17)				
Regional competences			.01 (.16)	-1.53*** (.31)		
Regional accountability					.06 (.14)	-1.55*** (.34)
Regional party in reg. government	.46	.27	.48	.23	.45	.30
	(.39)	(.47)	(.39)	(.47)	(.39)	(.48)
Altitude (logged)	.50**	.01	.50**	.01	.50**	.01
	(.18)	(.25)	(.18)	(.25)	(.18)	(.25)
Latitude	00	04	00	05	00	04
	(.06)	(.08)	(.06)	(.09)	(.06)	(.08)
% indigenous population	01	00	01	00	01	00
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)
Poverty	.22	34	.21	42	.22	27
	(.26)	(.39)	(.27)	(.39)	(.26)	(.40)
Gini	2.35* (1.03)	2.13 (1.72)	2.35* (1.02)	2.17 (1.72)	2.34* (1.03)	2.09 (1.72)
Colonial forced labor	51	.39	51	.38	51	.40
	(.53)	(.70)	(.53)	(.70)	(.53)	(.70)
Historical population density	07	12	07	12	07	13
	(.13)	(.16)	(.13)	(.16)	(.13)	(.16)
Colonial settlement year	01*	02	01*	02	01*	03
	(.01)	(.02)	(.01)	(.02)	(.01)	(.02)
Party institutionalization	4.50 (9.41)	13.85 <sup>+</sup> (8.13)	4.82 (9.42)	13.43 <sup>+</sup> (8.01)	4.30 (9.40)	13.58 <sup>+</sup> (8.13)
Liberal democracy	-2.04	4.49	-2.13	4.51	-1.97	4.58
	(2.48)	(3.25)	(2.49)	(3.24)	(2.48)	(3.25)
Regime corruption	2.29	-5.55	2.23	-5.19	2.31	-5.63
	(3.86)	(3.74)	(3.86)	(3.65)	(3.85)	(3.80)
GDP growth	52	2.70	31	2.49	67	2.63
	(3.81)	(4.18)	(3.83)	(4.19)	(3.80)	(4.19)
Constant	37.88		36.01		39.80	
	(34.02)		(33.65)		(34.46)	
Country-fixed effects	Yes		Yes		Yes	
N	608		608		608	
Log likelihood	-333.28***		-333.31***		-333.44***	

Notes: Robust standard errors clustered on departments in parentheses. \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. \* p < 0.1.

Table A2: Robustness tests limited to department-years with at least one mining project

	Model A4		Model A5		Model A6	
	Onset	Cont.	Onset	Cont.	Onset	Cont.
N mines (logged)	.37*	.22	.37*	.22	.37*	.23
	(.16)	(.21)	(.16)	(.21)	(.16)	(.21)
Decentralized responsiveness	.01 (.09)	57*** (.17)				
Regional competences			03 (.19)	-1.10*** (.32)		
Regional accountability					.04 (.16)	-1.11*** (.33)
Regional party in reg. government	.27	.15	.29	.12	.26	.16
	(.40)	(.49)	(.40)	(.49)	(.41)	(.50)
Altitude (logged)	.40*	.20	.40*	.23	.40*	.18
	(.17)	(.25)	(.17)	(.25)	(.17)	(.25)
Latitude	.03	13 <sup>+</sup>	.03	14 <sup>+</sup>	.03	12
	(.06)	(.08)	(.06)	(.08)	(.06)	(.08)
% indigenous population	01	00	01	00	01	00
	(.01)	(.02)	(.01)	(.02)	(.01)	(.01)
Poverty	.17	27	.16	32	.18	23
	(.31)	(.46)	(.32)	(.46)	(.30)	(.46)
Gini	2.63*	1.27	2.63*	1.15	2.62*	1.38
	(1.18)	(1.65)	(1.18)	(1.67)	(1.18)	(1.64)
Colonial forced labor	38	.50	39	.45	38	.55
	(.60)	(.74)	(.60)	(.75)	(.60)	(.74)
Historical population density	16	20	15	19	16	21
	(.13)	(.17)	(.13)	(.16)	(.13)	(.17)
Colonial settlement year	00	02	00	02	00	02
	(.02)	(.02)	(.02)	(.02)	(.02)	(.02)
Party institutionalization	7.40* (3.61)	9.07** (3.08)	7.59* (3.73)	10.40** (3.20)	7.36* (3.52)	7.62* (2.98)
Liberal democracy	4.51	8.65*	4.56	7.86*	4.43	9.47**
	(3.44)	(3.38)	(3.44)	(3.42)	(3.44)	(3.38)
Regime corruption	2.49	-2.78	2.51	-2.13	2.48	-3.11
	(3.48)	(4.28)	(3.47)	(4.11)	(3.49)	(4.38)
GDP per capita	.00*	.00*	.00*	.00*	.00*	.00**
	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
GDP growth	21	1.19	03	1.11	35	1.02
	(4.10)	(4.47)	(4.10)	(4.48)	(4.11)	(4.44)
Constant	30.11		25.32		31.83	
	(31.80)		(31.50)		(32.75)	
N	533		533		533	
Log likelihood	-300.49***		-300.77***		-300.38***	

Notes: Robust standard errors clustered on departments in parentheses. \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. + p < 0.1.