Mineral Wealth and Protest in Sub-Saharan Africa

Moisés Arce and Rebecca E. Miller

Abstract: Challenging the scholarship on the relationship between natural resources and civil society, this article advances a framework that differentiates the various types of protests surrounding mineral extraction in sub-Saharan Africa and explains how this extraction encourages contentious activity. On the basis of protest event data from thirty-nine countries in SSA for the 1990–2006 period, as well as available survey data, the article provides confirming evidence that mineral wealth increases protest activity.

Résumé: Contestant les recherches faites sur la relation entre les ressources naturelles et la société civile, cet article propose un model qui différencie les différents types de manifestations autour de l'extraction minière en Afrique subsaharienne et explique comment cette extraction encourage une activité contentieuse. Sur la base de données d'événement de protestation dans trente-neuf pays d'Afrique en SSA pour la période de 1990–2006, ainsi que de données disponibles, l'article fournit des preuves confirmant que la richesse minérale augmente les activités de protestation.

Keywords: Resource extraction; protests; resource curse; civil society; rights; services

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Introduction

In recent years, in countries as diverse as South Africa, Ghana, and Zambia, the extraction of mineral resources has led to notable and sometimes violent mobilizations. For instance, in August 2012 in the South African province of North West, police killed thirty-four striking miners who were demonstrating against the London-based Lonmin company. The protesters demanded higher wages and better working conditions at the Marikana mine, a leading producer of platinum which contributes significantly to the South African economy (Polgreen 2012; *The Economist* 2012a). In June 2006 seventy-six workers were injured in a protest at the Ahafo gold mine in Ghana against the Denver-based Newmont Mining Corporation (Yeboah 2010). Currently gold has replaced cocoa as Ghana's major foreign exchange earner, but the corporation, according to the workers, has not contributed significantly to job creation. In Zambia, recurrent protests have occurred in the towns of Kitwe and Mufulira against the Mopani Copper Mines, which are notorious for their adverse impact on livelihoods and the environment, including widespread water contamination and high sulfur emissions (IRIN News 2008).[1] Zambia is one of the world's top producers of copper, and the extraction of this mineral represents more than two-thirds of the country's exports. These events force us to ask the following question: Does the value of a country's mineral wealth increase protest activity?[2]

To date, a growing literature has examined the political implications of resource abundance (e.g., Ross 2012; Haber & Menaldo 2011). Much of it has found that revenues from natural resources free politicians from the need to finance government through taxation and enable them to buy citizen support through spending on goods or patronage, thus undermining citizen motivation to demand representation or hold leaders accountable (Mahdavy 1970; Paler 2013).[3] The bulk of this literature, however, has centered on the politics of oil and fails to explain the political effects that other natural resources, namely minerals, have on various forms of nonelectoral participation, such as protest activity. In addition, while some studies have begun to explore the relationship between mineral extraction and protest (e.g., Arellano-Yanguas 2010; Matlala 2014; Spronk & Webber 2007), their contributions have remained primarily at the case-study level. These case studies have generated a wealth of descriptive detail and emphasized contextual factors that are unique to specific countries or time periods, but the generalized pattern of political responses to mineral extraction has remained unexplored.

The contributions of this article are twofold. First, departing from the conventional wisdom in the rentier-state literature that suggests that resource windfalls make citizens more quiescent (Mahdavy 1970), it advances an alternative framework to demonstrate and explain the relationship between mineral wealth and protest activity. Second, it looks at the effects of mineral wealth on contentious activity according to records of

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protest event data from thirty-nine countries in sub-Saharan Africa (SSA) for the 1990–2006 period. The results provide confirming evidence that the value of a country's mineral wealth encourages protests. These findings remain robust across alternative measures of mineral wealth, as well as a host of theoretical and temporal control variables. This conclusion is also supported by survey data from the Afrobarometer (2012), which confirms a link between mineral extraction and the probability of participating in protest activity at the individual level. The analysis centers on a "least likely" case—Kenya—which has lower-than-average levels of mineral wealth compared to the other countries in our sample (e.g., South Africa), and as such, the "least likely" relationship between extraction and protest.[4]

Our primary statistical analysis, based on media reports of protest events, helps to uncover mobilization patterns across SSA and over time. Since large and violent events are more likely to be reported in the media, these data serve as an indicator of the relative levels of protest over time and across countries in the period under investigation, rather than as a measure of the absolute level of mobilization against resource extraction (see Almeida 2007). Similarly, while the statistical analysis based on survey data offers valuable information on citizens' attitudes and behaviors, it suffers from ecological fallacy problems (i.e., making inferences about individuals based on analyses of group data) as well as the drawback of poorly informed respondents. In addition, both of the statistical analyses rely on observational data, which do not allow for determinations of causality. Nonetheless, these findings on the relationship between mineral wealth and contentious activity are consistent with the conclusions of social movement theorists and researchers in other fields such as geography and political ecology, and across countries as diverse as Ghana (Mensah & Oykere 2014), Tanzania (Makene, Emel, & Murphy 2012) and Malawi (Mzembe 2016). Our fieldwork in South Africa's platinum belt conducted in 2015 also helped confirm the varied motivations and goals pursued by protesters who are located near extractive areas.

SSA provides an ideal environment for analyzing the relationship between mineral wealth and contentious activity. First, the region is geologically blessed with an abundance of natural resources such as gold, zinc, and lead, and it houses important large-scale mining companies, such as Gold Fields, Xstrata, and Newmont. Several countries in SSA have also experienced an impressive economic bonanza due to rising commodity prices—about a third of Africa's GDP growth comes from commodities—and the growing Asian demand for raw materials (Devarajan & Fengler 2013; World Bank 2013a).[5] In the first decade of the 2000s, six of the world's ten fastest-growing economies were, in fact, African (*The Economist* 2011). Second, countries in SSA, which are very similar to one another when it comes to the abundance of mineral resources, experience different levels of protest. The protest movements over the extraction of mineral resources share similar causes (e.g., conflicts over land and water, conflicts over the redistribution of resource wealth), networks of actors in opposition to

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mining (e.g., local villages affected by extraction, environmental nongovernmental organizations [NGOs], etc.), and opponents who support the extraction (e.g., the extractive industry, national governments, etc.). Yet some of these protest movements have been much more successful in resisting extraction than others. Insofar as the extraction of mineral resources is pivotal to a country's political economy, the political consequences of protests over extraction in SSA have important ramifications for similar resource-based growth policies elsewhere in the developing world.

This article begins with an outline of the theoretical arguments that help explain the relationship between mineral wealth and protest, along with recent examples of contention in SSA. The next section presents the collected data and empirical results. The conclusion revisits the effects of mineral wealth on protest, paying particular attention to the larger context of the development of civil society in SSA.

Demanding Rights and Services

Does the value of a country's mineral wealth foment protest activity? The bulk of political science explanations on the relationship between natural resources and civil society—which follow rentier-state theory (Mahdavy 1970)—are not well-suited to explain the social unrest that accompanies the extraction of mineral resources. Rentier-state theory suggests that resource rents (or windfalls) make citizens more quiescent. This occurs because windfalls allow governments to relieve social pressures through a mix of low taxes and patronage spending (Mahdavy 1970), thus undermining citizen motivation to hold government accountable (Paler 2013). Karl (2007:265) also suggests that revenues from natural resources lead to "participation deficits," disengaging citizens from the state.

More recent work challenges some of these arguments and finds that political leaders in oil-rich states in particular do negotiate with citizens about their country's subsoil riches. However, these politicians can successfully hide the lion's share of the state's rents, granting themselves some breathing space from the day-to-day exigencies of politics (Ross 2012). Therefore, the conventional rentier-state arguments and more recent interpretations suggest that resource abundance or a commodity price boom are not likely to mobilize civil society.

The literature that emphasizes political quiescence, however, has focused on the politics of oil, and is primarily interested in explaining how the windfall affects the behavior of politicians. For instance, windfalls raise the value of holding office and thus incentivize politicians to buy support through spending on goods or patronage (Paler 2013). This article, in contrast, focuses on the consequences of non-oil wealth on different forms of nonelectoral participation—namely, protest activity.

A great deal of research has looked at the effects of natural resources on civil wars. However, as Le Billon (2008) reminds us, extractive activities are likely to provoke other forms and scales of violence beyond armed conflicts.

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In fact, mobilizations connected to extractive activities have revolved around issues such as the forced displacement of populations due to the loss of land ownership; the negative environmental effects stemming from extractive activities, such as water contamination; and the distribution of resource rents, which has increased local inequalities between resource-producing communities and non-resource-producing ones (Le Billon 2008; Perreault & Valdivia 2010). These patterns of mobilization, which can be seen as everyday forms of resistance (Hellman 1997) that have emerged in contexts of globalization and market liberalization, remain undertheorized, and their relationship to resource wealth has yet to be studied systematically.

Africa has the second highest number of mining conflicts in the world, behind Latin America (Özkaynak et al. 2015). While mineral extraction is not new to these regions, the current wave of protests over mineral extraction provides an ideal venue to understand the changes that have arisen as a consequence of expansion of the extractive economy (or "new mining," as other authors have called it). According Bebbington (2009:8), these changes include "the scale and pace of expansion, the financial flows involved, the domiciles and governance of the companies and finance houses investing in extraction, [and] the interaction between extraction and investment."

Under "new mining," technological conditions have reduced the need for unskilled labor, and labor disputes between mining companies and workers have become less visible overall.[6] Instead of requiring labor, "new mining" techniques, including open-pit and heap leaching, need more water, energy, land, and landscape. The actors involved in protests are therefore members of the rural and urban populations whose land, landscape, water quantity and quality, environmental safety, and livelihoods are threatened by these activities (Bebbington 2009). These new actors have emerged to challenge the extractive economy, forming coalitions that cut across classes, the urban and rural divide, and environmental and nationalistic discourses (Arce 2014).

However, not all of the protests against "new mining" concern the adverse impact of mining on livelihoods and the environment. Soaring commodity prices have yielded remarkable profits for large, global extractive industries, and windfalls from "new mining" have encouraged a revision of previous tax and royalty agreements between national governments and mining corporations (*The Economist* 2011, 2012b). Currently taxes collected from mining are also the most important intergovernmental transfer linked to the extraction of mineral resources, and these transfers have also encouraged a sizeable number of mobilizations over their distribution and use across the different tiers of government—local, provincial, regional, and national (Arellano-Yanguas 2010).

Protesters who live near extractive areas thus have varied motivations and pursue diverse goals. This article advances a framework that differentiates the diversity of mobilizations surrounding resource extraction. Some of these

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mobilizations are driven by demands for "rights," which seek to protect local citizens' rights over water access and quality, land and landscape, as well as culture. Other mobilizations are driven by demands for "services," which arise as a consequence of disputes over the distribution and use of revenues derived from mineral extraction.[7]

Demands for Rights

Actions in defense of basic rights—including the right to water, land, or cultural survival—are examples of rights-based mobilizations. Protesters often frame their claims in terms of environmental risks or damages, or what political ecologists have identified as "vulnerability" (that is, "the susceptibility to be harmed"—Adger 2006). In some cases, rights-oriented movements aim to deny the permits that would allow mines to develop or try to halt the expansion of already existing mining activities. In other cases, local communities affected by extraction that feel marginalized or excluded from the decision-making process regarding natural resource governance demand their right to be consulted on development projects that affect indigenous people. Most rights-based mobilizations simply oppose mining altogether.

Newmont's Ahafo gold mine in southwestern Ghana, which began operating in 2006, is a good example of a mining venture that has been the target of mobilizations in opposition to extraction.[8] The Ahafo mine has been subject to repeated protests over issues of environmental contamination, land use, and water rights. The initial phase of the mining project, for instance, called for the relocation of approximately 9,500 Ghanaians, most of them subsistence farmers. Yet land replacement measures critical to restore their livelihoods (e.g., water access, fish ponds, and crops) remain incomplete or uncertain. In October 2009 a cyanide spill from the Ahafo mine killed a large number of fish and threatened the water of several local communities. An independent review later revealed that Newmont had failed to adequately inform the community of the potential risks of water contamination associated with the mine (ENS 2010; Sarin 2006).

The Wassa Association of Communities Affected by Mining (WACAM), a Ghanain NGO founded in 1998, has questioned the weak laws governing the country's mining sector. WACAM began as a small community-based mining advocacy NGO in the then Wassa West District of Ghana (Ameyibor 1998). It later expanded its work to cover other communities affected by extraction in the Western, Ashanti, Eastern, and Brong Ahafo Regions of the country. To reflect the adverse impact of "new mining" on livelihoods and the environment, in 2009 the Wassa Association changed its name to simply "WACAM," which, when translated into the Akan language, means "I have been bitten" or "I have been disturbed."

About 14 percent of the world's titanium reserves are located Kenya's coastal areas, and in 2000 Tionmin Resources Inc., a Canadian company, secured the rights to exploit titanium deposits in the Kwale district. This mining concession led to the formation of the Coast Mining Rights Forum,

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which brought together local communities and human rights organizations to stop the initiation of mineral extraction. In addition, diverse groups, including farmers, indigenous peoples, traditional communities, and other Kenyan citizens participated in public campaigns, blockades, and street mobilizations. Protesters objected to the proposed displacement of five thousand indigenous peoples, the loss of biodiversity, and the possible contamination of local soils and waters (Greyl 2015).

In Zambia in 2014, calls by indigenous people deploring the lack of consultation in extending mining claims surfaced against the extraction of copper in the Lower Zambezi National Park, and similar protests have been lodged in Madagascar in opposition to operations of the Chinese company Mainland Mining (Sakala 2014; *Madagascar Tribune* 2012).

Thus in various countries in Africa, mobilizations have brought together diverse groups of people from the areas affected by extraction. Mobilizations invoking consultation rights often adopt an environmental vulnerability discourse, as described above, to further resist the extraction of mineral resources. Yet unlike the situation in several Latin American countries (Vittor 2014), these appeals have yet to materialize in actual referenda in opposition to mineral extraction.

Demands for Services

As opposed to the rights-based mobilizations, struggles centered on the division of tax revenues, royalties, or other economic benefits associated with mining exemplify service-based mobilizations. These mobilizations do not oppose mining activity per se, nor do they seek mine closure as an ultimate goal. Protesters simply aim for financial improvement, job growth, or funds to support clean-up or other reclamation projects. In several cases these mobilizations have not involved mining companies directly, but rather contestation between local populations and political authorities representing the different tiers of government. These mobilizations are common in relatively barren regions, where agriculture is limited and mining is the only economically viable activity.

In general, local governments seek to integrate extractive activities in an area with local development. Local governments may choose, for example, to spend resource revenues on infrastructure projects or to improve service delivery to help circumvent the negative consequences of extractive activities (Collier 2010). However, perceived inequities in the distribution of resource wealth, as well as perceived inefficiency in the management of windfalls, have triggered a sizeable number of protests. A related set of service-based mobilizations have resulted in the renegotiation of previous land-transfer agreements among mining companies, local communities, and political authorities. Usually these renegotiations are triggered by sudden increases in mining profits, which encourage local communities to demand the "fulfilment of promises and agreements that they felt had not been honoured," or the delivery of their "share of

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unprecedented [company] profits" (Arellano-Yanguas 2010:122–23). Unlike the mobilizations over the distribution and use of revenues generated from resource extraction, these contentious episodes affect mining companies directly.

For example, the resource wealth associated with platinum, South Africa's most lucrative export, has led to repeated protests over the distribution and use of revenues generated from mineral extraction. The claims of protesters exemplify the various service-based mobilizations.[9] On the one hand, the Bafokeng people in the North West Province, where the platinum belt is located, fought for decades in the streets and in the courts over their share of mineral royalties from Impala Platinum and the apartheid government. The land concessions for mining date back to the mid-1960s, and the disputes with Impala over the distribution of royalties were finally settled in February 1999 (Manson & Mbenga 2003). With this revenue, the Bafokeng people have invested in roads, shops, schools, and clinics (Maykuth 2001). Their success in gaining control over platinum resources, in conjunction with the platinum boom in the mid-1990s, helped to characterize the Bafokeng people as "the richest tribe in Africa" (Manson & Mbenga 2003). The Bafokeng's story is also seen as a model of resource governance that other communities affected by extraction could seek to emulate (Cook 2013; Herskovitz 2012). Notwithstanding these victories, Bafokeng communities continue to agitate for increased benefits from both the mining industry and tribal authorities.[10]

On the other hand, nearby communities resent the revenue that the Bafokeng people receive, and lament their own inability to benefit in similar ways. The Bakwena people, also in the North West Province, are still involved in a protracted battle, which began in 2005, against the Swiss mining company Xstrata (AFP 2000). In this case, efforts to secure a share of platinum royalties have also been complicated by competing factions within the Bakwena community (Manson 2013). A protest in late 2006 turned violent, and the police used tear gas to disperse the protesters. Several protesters were also charged with arson, although the charges were later dropped. The *Mail and Guardian* aptly summarized these events in an article entitled "Platinum Wars" (Sosibo 2006).

Comparison of Rights- and Service-Based Demands

A couple of additional points about this classification of mobilizations are warranted. First, the differentiation between "demands for rights" and "demands for services" mirrors Perreault's (2006) discussion of demands for "procedural justice" and "distributive justice" over natural resource governance. He describes the demands for "procedural justice" as calling for "greater participation and transparency in decisions over the management of natural resources" (2006:154), while the demands for "distributive justice" call for "more equitable distribution of the benefits deriving from the exploitation of natural resources" (2006:154). Thus the demand for

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"procedural justice" overlaps with what we have called "demands for rights," particularly those invoking consultation rights, while the demand for "distributive justice" represents what we have called "demands for services" over the division of royalties and tax revenues or other economic benefits associated with mining.

Second, it should be noted that rights- and service-based mobilizations are not mutually exclusive categories. Rather they aim to provide a citizen-centered explanation of how extraction affects local communities. Stopping a mining project from being implemented in the first place is very difficult, as there are clear power imbalances between local communities and extractive industries. In Ghana's Ahafo mine, for instance, some groups continue to oppose extraction due to the adverse impact of mining on the environment (rights-oriented mobilizations), but other people who are benefiting from the operations of the mine are more likely to raise claims about financial improvement (service-oriented mobilizations).

In sum, while both rights- and service-based grievances are likely to foment protest activity, the contexts for the mobilizations and the content of the demands differ. The mobilizations over demands for services acknowledge the benefits of extraction and seek a more equitable distribution of the revenues generated from mining (e.g., better provision of social services, higher wages for mine workers). They are not opposed to extraction per se, and the claims of protesters, moreover, are very specific and negotiable. In contrast, the mobilizations over demands for rights seek to protect local rights over water access and quality, land and landscape, as well as culture. These mobilizations seek to halt extraction, and at the same time they raise broader claims that are more intransigent and less prone to compromise. These broader claims conform to Perreault and Valdivia's (2010:691) observation that resource conflicts often entail "struggles involving the terms of citizenship, the nation, rights and identity."

It also should be noted, finally that while the examples from Ghana, Kenya, and South Africa provide empirical support for the connection between mineral resource extraction and demands for rights and services, this linkage does not appear to be inevitable. Other geologically blessed countries in the region, such as Namibia and Gabon, have not experienced many protests. In addition, the wide variations in mobilizations across SSA also suggest that we need to be cautious about making generalizations from a small number of cases. The next section draws on available protest event data to explain the specific relationship between mineral wealth and protest across the region and over time.

Data and Measurement

In order to analyze the effects of mineral wealth on protest, we examined cross-sectional time-series data collected from thirty-nine countries in SSA between 1990 and 2006.[11] All of the variables in the analysis were measured for each country for each year. The dependent variable, "Protest," is the

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annual count of demonstrations, riots, and strikes compiled by the Social Conflict in Africa Database (SCAD) (Hendrix & Salehyan 2012). SCAD presents the most comprehensive protest figures for sub-Saharan Africa, deriving its counts from articles appearing in the Associated Press and Agence France Press. By employing wire services, SCAD reports a higher number of events than traditional protest databases do, as wire services are not limited by space restraints.[12] In the sample, the mean of "Protest" is 5.28 protest events, and the variable ranges from zero to eighty-four protest events.

The main explanatory variable of interest is a country's mineral wealth, which consists of two different measures. First, "Mineral Income" is the total value of production of industrial and precious minerals per capita, as compiled by Haber and Menaldo (2011).[13] By looking at the value of minerals per capita, we were able to test if resource wealth had an effect on protests, regardless of how efficiently that wealth was managed or how resource revenue influenced a state's economy (Ross 2009). In the sample, the mean of mineral income is U.S.$45.81 per capita, and the variable ranges from U.S.$0 to U.S.$1,327 per capita. Second, "Minerals" was measured as the value of mineral exports as a fraction of a country's GDP. These data came from the World Bank (2012) and provided additional yearly observations.[14] In the sample, the mean of "Minerals" is 1.64 percent, and the variable ranges between 0 and 58 percent of a country's GDP. Because we were interested primarily in the effects that mineral wealth generates, rather than the impact of a country's dependence on mineral exports, mineral income was seen as a better measure of resource wealth compared to the value of mineral exports (see Ross 2009). As previously noted, we expected mineral wealth (i.e., "Mineral Income" and "Minerals") to correlate positively with "Protest"—demands for "rights" or "services" over the extractive economy.[15]

We considered a number of control variables that have been identified in prior research as important for understanding the cross-national variation of protest activity. We controlled for a country's level of "Democracy," as existing literature suggests that compared to autocracies, democracies foster collective mobilization by relaxing repression (Francisco 2009), encouraging associational life, and opening channels of popular participation (Almeida & Johnston 2006). The level of "Democracy" was judged in terms of the combined polity score from Marshall et al. (2009), which ranges from –10 to +10.

In addition, one can generally expect that as people get richer, they tend to become politically risk-averse, to be deradicalized, and to eschew explicit conflict. To control for this income effect we included the control variable of "Income," measured by GDP per capita in terms of constant 2000 U.S. dollars. "Growth"—referring to the annual growth rate of real GDP in constant prices—was also included to control for a possible relationship between overall economic performance and protest activity. Both income and growth were lagged by one year (i.e., using the values from

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the past period) to properly capture their realized economic effects. Finally, we included "Population (log)"—the log of total population—to control for the possibility that larger, more populous countries may experience higher levels of protest activity compared to smaller, less populous countries. "Income," "Growth," and "Population (log)" data were taken from the World Bank (2012).

Two protest controls were included to account for the potential spatial-temporal dependence of protest activity. Tarrow (1998), among others, argues that protests follow a cyclical pattern in which waves of protest spread rapidly across regions (or countries, in our case), and then recede in the same manner. To control for the spatial dependence of protest activity, we included the variable "Level of Protest," the SSA's mean level of protest per year throughout the sample period. To control for the temporal dependence of protest activity, we included the lagged dependent variable "$Protest_{t-1}$."

We proceeded by estimating a conditional, fixed-effects negative binomial event-count model. Since "Protest" is a rare event-count variable, we used the negative binomial model to deal with the problem of over-dispersion underlying the data (Long 1997).[16] To account for country-specific traits and to correct for a possible serial correlation, we employed the fixed-effects model with a lagged dependent variable, so that the fixed-effects negative binomial model was estimated by conditional maximum likelihood (Cameron & Trivedi 1998; Hilbe 2008).

Results

Table 1 presents our empirical findings. "Mineral Income" is our main explanatory variable in models 1 and 2, and "Minerals" is our main explanatory variable in models 3 and 4. Mineral income, again (the total value of mineral production), is a stronger measure of a country's mineral wealth compared to mineral exports, and thus we retained this measure in future regressions. The combined results demonstrate a strong empirical connection between a country's resource wealth and protest, suggesting that higher levels of mineral revenue per capita (or mineral exports as a share of a country's GDP) lead to higher levels of protest. The abridged results presented in models 1 and 3 confirm that our findings are not driven by the inclusion of other control variables.

Models 2 and 4 test the effects of resource wealth alongside other theoretical and temporal controls that are said to influence protest activity. In these models, the control variables "Population (log)," "$Protest_{t-1}$," and "Level of Protest" have positive and statistically significant effects on protests. As expected, more populous countries are more likely to experience protests than less populous countries. The variables "$Protest_{t-1}$" and "Level of Protest" confirm the cyclical nature of protests as well as their diffusion effects across SSA. Contrary to our expectations, "Democracy" does not exert a statistically significant effect on protests. The variables measuring

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Table 1. Resource Wealth and Protests in Sub-Saharan Africa

	Model 1	Model 2	Model 3	Model 4
Mineral income	.001* (.000)	.002** (.002)		
Minerals			.018** (.007)	.023*** (.007)
Democracy		–.012 (.011)		–.013 (.009)
$Growth_{t-1}$		–.001 (.004)		–.002 (.004)
$Income_{t-1}$		.000 (.000)		.000* (.000)
Population (log)		.262*** (.090)		.225*** (.073)
Level of Protest		.144*** (.026)		.146*** (.023)
$Protest_{t-1}$	.024*** (.003)	.017*** (.003)	.027*** (.003)	.019*** (.003)
Constant	.512*** (.102)	–4.450*** (1.430)	.432*** (.089)	–3.979*** (1.190)
Observations	654–1376.30	621–1281.63	818–1759.54	816–1732.88
Log Likelihood				

Note: Standard errors in parentheses. All models are time-series cross-sectional conditional fixed effects negative binomial regressions.
* p<.1
** p<.05
*** p<.01

the effects of the economy ("Income" and "Growth") also do not appear as strong correlates of protest activity.

To provide more substantive interpretations in regard to our main explanatory variable, table 2 shows the effects of "Mineral Income" on "Protest" using a statistical simulation. Following King, Tomz, and Wittenberg (2000) and Tomz, Wittenberg, and King (2003), table 2 estimates the predicted event counts of "Protest" following model 1 and computed for five different levels of "Mineral Income" (minimum, mean, three standard deviations, and maximum values). All estimates are significant at the conventional level. These predicted counts demonstrate a monotonic relationship between mineral income and protest, and confirm the empirical observations associating mineral wealth with protest activity. Given the overdispersion of the dependent variable, these effects become most pronounced in the far right tail of the distribution.

Sensitivity Analysis

In addition to the models shown in table 1, we conducted a series of robustness tests to ensure the stability of our findings. One concern is the impact of oil. As mentioned earlier, the literature that emphasizes political quiescence has focused on the politics of oil, while this article, in contrast, explores the consequences of non-oil wealth on different forms of nonelectoral participation, namely, protest activity. For this reason, both of the main explanatory variables of interest ("Mineral Income" and "Minerals") exclude oil wealth. But to gain greater confidence in our findings, we tested for the effects of oil wealth on "Protest" (see table 3). The variable "Oil Income" was measured in

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Table 2. Estimated Effects of Resource Wealth on Protests

Mineral Income	Expected Count of Protest
Minimum (0)	5.16 (.281)
Mean (45.81)	5.40 (.271)
+ 1 Standard deviation (173.89)	6.14 (.461)
+ 2 Standard deviations (301.98)	7.01 (.864)
+ 3 Standard deviations (430.06)	8.03 (1.42)
Maximum (1,327.95)	22.76 (13.63)

Note: Standard errors in parentheses. Entries are the estimated event count of protest, calculated using Clarify 2.1.

terms of total oil income per capita (barrels produced, divided by population, multiplied by the real world price, expressed in thousands of 2007 U.S. dollars), which is also available from Haber and Menaldo (2011). In the sample, the mean of "Oil Income" is U.S.$103 per capita, and the variable ranges from U.S.$0 to U.S.$5,613 per capita. The results demonstrate that oil income does not exert an independent effect on contentious activity (model 5) or suppress the explanatory power of mineral income (model 6).

A second concern is our primary dependent variable, "Protest," which aggregates three different protest indicators in an effort to capture the overall mobilization trend in SSA. Table 4 disaggregates the outcome variable and shows the effects of "Mineral Income" on "Demonstrations" (model 7), "Riots" (model 8), and "Strikes" (model 9). These results show that the amount of mineral income correlates significantly with the occurrence of both demonstrations and riots, suggesting that our previous findings are not necessarily driven by the aggregate indicator of protest.

Table 3. Oil and Protests in Sub-Saharan Africa, 1990–2006

	Model 5	Model 6
Mineral Income		.002** (.000)
Oil Income	.000 (.000)	–.000 (.000)
Democracy	–.012 (.011)	–.012 (.011)
$Growth_{t-1}$	–.000 (.004)	–.000 (.004)
$Income_{t-1}$	.000** (.000)	.000 (.000)
Population (log)	.248*** (.089)	.263*** (.089)
Level of Protest	.134*** (.026)	.146*** (.026)
$Protest_{t-1}$	.018*** (.003)	.017*** (.003)
Constant	–4.186*** (1.414)	–4.475*** (1.428)
Observations Log Likelihood	621–1283.99	621–1281.40

Note: Standard errors in parentheses. All models are time-series cross-sectional conditional fixed effects negative binomial regressions.
*p<.1
** p<.05
*** p<.01

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Table 4. The Effects of Resource Wealth on Demonstrations, Riots, and Strikes

	Model 7 Demonstrations	Model 8 Riots	Model 9 Strikes
Mineral Income	.002** (.001)	.002* (.001)	.001 (.001)
Democracy	–.010 (.014)	.004 (.016)	–.027** (.012)
$Growth_{t-1}$	–.008 (.006)	–.001 (.007)	.005 (.006)
$Income_{t-1}$	.000 (.000)	–.000 (.000)	–.000 (.000)
Population (log)	.278** (.109)	.295** (.132)	.450*** (.153)
Level of Demonstrations	.360*** (.063)		
$Demonstrations_{t-1}$	.025*** (.008)		
Level of Riots		.341*** (.099)	
$Riots_{t-1}$		.031*** (.008)	
Level of Strikes			.761*** (.176)
$Strikes_{t-1}$			.052*** (.016)
Constant	–5.199*** (1.747)	–5.194** (2.152)	–7.442*** (2.437)
Observations Log Likelihood	621–933.78	621–741.98	608–708.56

Note: Standard errors in parentheses. All models are time-series cross-sectional conditional fixed effects negative binomial regressions.
* p<.1
** p<.05
*** p<.01

The results shown in table 4 also appear to confirm the hunch that the types of mobilizations against resource extraction in the context of "new mining" do not generally entail labor disputes. Rather, these mobilizations encompass broad sectors of society and include demands for "rights" in regard to the adverse impact of extraction on the environment and livelihoods, as well as demands for "services" connected to the distribution of a country's mineral wealth. As shown in table 4, "Mineral Income" has a statistically significant effect on "Demonstrations" (model 7) and "Riots" (model 8). However, this is not the case for "Strikes" (model 9).

Next, we considered a couple of alternative explanations affecting the relationship between resource wealth and protest. First, we examined the effects of ethnicity on protests. Ethnic fragmentation is a salient explanatory variable in studies about the consequences of natural resource wealth in particular (e.g., Hodler 2006), and in studies of the politics of sub-Saharan Africa in general (e.g., Schündeln 2013). In addition, recent research suggests that ethnic fragmentation reduces antigovernment protests because it shapes an individual's calculations in response to the government's use of force (Arriola 2013). Based on the algorithm devised by Alesina et al. (2003), the variable "Ethnic Fragmentation" was therefore measured in terms of the probability that two randomly selected individuals belong to different ethnic groups.[17] The results reveal that ethnic fragmentation is not a strong correlate of protest activity.

Second, while our theory posited (and our results confirm) that resource wealth has an independent effect on protest, we considered whether

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resource wealth may have an interactive effect with other variables. Specifically, we estimated the effects of mineral income on the level of protest conditional upon regime type. The interaction term "Mineral Income * Democracy" captures this conditional effect of resource wealth, with regime type considered as an intervening variable that affects the relationship between resource wealth and protests. The interaction term, however, was not statistically significant. Overall, the results (not shown) of these alternative explanations—ethnicity and possible interactive effects—were inconclusive, and do not challenge the main findings reported in this article.

Finally, our results held up when we estimated an unconditional, random-effects negative binomial model as opposed to the fixed-effects models presented throughout the article, and when we ran regressions taking five-year country averages to account for the relative stability of our main explanatory variable over time. Our main results did not change with the inclusion of country and year dummy variables.

Predictors of Protest Activity in Kenya

The protest figures from SCAD allowed us to capture mobilization trends across SSA and over time, and our analysis shows that mineral wealth in particular correlates positively with mobilization trends. Yet the analysis based on aggregate number of protest events fails to explain the reasons that individuals may choose to participate in a protest. Using survey data from the Afrobarometer (2012), we employed a logistic regression with robust standard errors to explain the determinants of protest participation in Kenya—a "least likely" case that can help confirm whether or not mining is a significant driver of protest. As shown in our previous analysis (tables 1–4), the country ranks below the mean in terms of mineral wealth, and as such, it represents a tough test case for the posited relationship between extraction and protest.

Our dependent variable, "Protest," was calculated on the basis of respondents' answers to the Afrobarometer survey about their participation in protest activity in the previous year. We recoded this information into a dummy variable: "1" denoting that an individual protested in the previous year and "0" otherwise. Our main independent variable of interest was "Mineral Extraction," which identifies the presence of extractive activities at the district level using geographic coordinates from the United States Geological Survey (Eros & Candelario-Quintana 2006), supplemented with data from Gilmore et al. (2005) and Lujala (2009). If a survey respondent resided within a district that extracts minerals, then "Mineral Extraction" was coded as 1. If the survey respondent did not live in such a district, then "Mineral Extraction" was coded as 0. We used this variable as a proxy for the rights- and service-based claims that encourage protest activity.

Following existing literature (Luna & Maureira 2013), we took into account a number of political variables that are hypothesized to influence

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one's propensity to participate in a protest. For instance, the Afrobarometer (2012) asks respondents whether they voted in the past election, had an interest in politics, identified strongly with a political party, supported democracy, and supported their president. Respondents also rated their quality of living compared to others and noted whether they were a member of a voluntary association or community group ("Social Capital"). Finally, respondents were asked a number of demographic variables, such as their gender, age, level of education, and race.[18]

As shown in table 5, the presence of mineral extraction in a district positively and significantly increases one's likelihood of participating in a protest, a finding that is robust in regard to a number of control variables. As in the example of the Kwale district, the presence of mineral extraction encourages several rights- and service-based claims, and propels diverse groups of actors to take to the streets. Kenya, as stated above, is less mineral-rich than other countries in our sample, yet we found a strong statistical relationship between mineral extraction and an individual's probability of participating in a protest in Kenya. In this way, the results that consider individuals as the unit of analysis (table 5) help to corroborate the robustness of the previous estimations based on the aggregate number of protest events (tables 1–4).

The results in table 5 also reveal an important political story. On the one hand, individuals who vote regularly and show support for democracy are less likely to participate in a protest. On the other hand, individuals who identify strongly with a political party, show interest in politics, and are members of a voluntary association or community group are more likely to

Table 5. Predictor of Protest in Kenya, 2011

	Standardized Coefficient	Standard Error
Mineral Extraction	0.44972**	(0.21259)
Vote	–0.49190*	(0.25608)
Political Interest	0.23674**	(0.09769)
Party Identification	0.59767***	(0.22646)
Support for Democracy	–0.37648***	(0.14538)
Support for President	–0.06489	(0.12480)
Quality of Living	–0.20001*	(0.10358)
Social Capital	0.35280***	(0.09247)
Education	0.05067	(0.07580)
Gender	–0.54064***	(0.20596)
Age	–0.02964***	(0.00888)
Race	0.65004**	(0.29860)
Constant	–1.05331	(0.75282)
Observations Prob>F	1,299 0.000	

Note: Standard errors in parentheses. The model is a logistic regression.
* p<.1
** p<.05
*** p<.01

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engage in protest activity. These results indicate that protesters are actively engaged in political life, supporting the notion that protest has become a form of legitimate expression of political demands in democratic states.

Conclusion

The extraction of mineral resources has fueled much of the recent economic growth in SSA, and this economic expansion has led to noticeable improvements in the quality of life of many citizens across the region. However, the extraction of mineral resources has also encouraged a growing number of protests, partly because of the threat it represents to livelihoods and the environment, and partly because of distributional struggles over mineral wealth. This article attempts to explain the relationship between a country's mineral wealth and protest activity beyond the positive cases that appear to suggest that such relationship exists (e.g., the examples of Ghana, Kenya, and South Africa), or the negative cases that appear to suggest the opposite (e.g., Namibia and Gabon). While using different measures of mineral wealth and taking into account several theoretical explanations and control variables, we have found a statistical regularity that is generalizable across the SSA region: mineral wealth increases contentious activity.

This article also takes advantage of available survey data to explain the probability of participating in a protest, a key question that aggregate data cannot reveal. Our results show that an individual's propensity to participate in a protest increases in the areas or districts where mineral extraction takes place, even in the example of Kenya, a "least likely" case because of its lower-than-average levels of mineral wealth. Taken together, the aggregate-level results based on protest events recorded by SCAD and the individual-level results based on the Afrobarometer help to confirm that rights- and service-based claims are likely to foment protest activity in the context of mineral extraction.

In terms of theory, the core arguments about the relationship between natural resources and civil society, which come from rentier-state theory, are not well-suited to explain why the extraction of natural resources encourages protest activity. These arguments suggest that resource revenues allow governments to relieve social pressures through a mix of low taxes and patronage spending, and produce political quiescence. While these arguments explain how windfalls shape politicians' actions, they do not explain well how citizens living near extractive areas are likely to respond to "new mining." Given these limitations, this article advances an alternative, citizen-centered approach that ties "new mining" to contentious politics. This framework demonstrates important differences across the mobilizations over the extractive economy. Service-based protests reflect the perceived benefits of extraction and seek a more equitable distribution of the revenues that are generated. Rights-based protests, in contrast, emphasize the harm caused by extraction and seek to protect the water supply and lands from the perceived threats that are typically associated with mining.

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Future research should take into account the changing political dynamics affecting citizens who are proximate to extractive activities. While the SCAD figures used here to explore the variation of protests across SSA and over time and the Afrobarometer data on the predictors of protest participation in Kenya are suggestive of broader societal trends of political activism, these data sources are not without limitations. In fact, other literature has argued that civil society in the region has not developed at the same pace as in other areas (see Makumbe 1998). SSA civil society groups have often turned to the global North for support, and some studies (e.g., Mohan 2002; Hearn 2001) suggest that this interaction undermines the development of an independent civil society. As mentioned earlier, there is also wide variation among the protest movements that are contesting resource extraction. According to Claude Kabemba, director of Southern Africa Resource Watch (SARW), in South Africa's platinum belt, for instance, some of these groups have built a vast network of support involving community organizations and NGOs, but other groups appear to be very weak and fragmented (interview, Johannesburg, June 18, 2015).

Nevertheless, resistance struggles against resource extraction do paint a picture that is the opposite of political quiescence, and future research should explore how this activism may be changing the development of civil society in SSA. It certainly is not an easy undertaking for the less powerful to mount a successful opposition campaign against a lucrative extractive industry and the governments that sponsor "new mining." "The playing fields are skewed," said James Sutherland, a lawyer who assisted the Bafokeng people in the mid-1990s (quoted in Manson & Mbenga 2003:28). Protests require a high level of organization and mobilization of resources. They also require that participants devote time outside of their daily routines to sustain them. Future research, therefore, should also explore the conditions that allow protest movements to mobilize successfully on behalf of aggrieved groups.

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Notes

1. The Mopani Copper Mines are owned jointly by Canada's First Quantum Minerals, the Swiss firm Glencore International, and the Zambian government through ZCCM Investments Holdings.
2. Throughout this article, the terms "protest" and "mobilization" are used interchangeably. In keeping with Goodwin and Jasper's definition (2003:3), the term "protest" refers to "the act of challenging, resisting, or making demands upon authorities, powerholders, and/or cultural beliefs and practices by some individual or group."
3. A large literature has also shown that resource wealth fosters violent civil wars (e.g., Collier & Hoeffler 2002). This literature argues that high-value resources, such as oil or diamonds, provide a motive for national-level conflict over the central government's control of both resources and related revenues. High-value resources also provide opportunities for conflict, as the (illegal) trade in them can be used as a way to finance rebellion. Because this article focuses on protest activity at the local level, it pays closer attention to the arguments of rentier-state theory rather than those of the civil war literature.
4. A "least likely" case is one that is very unlikely to validate the predictions of a hypothesis (Eckstein 1975).
5. For instance, the price of gold increased from U.S.$376 in the early 1990s to U.S.$1,084 in the late 2000s (per troy ounce). In the same period, the price of copper rose from U.S.$2.43 to U.S.$6.67 (per kilogram), and the price of lead increased from U.S.$0.6 to U.S.$1.9 (per kilogram) (World Bank 2013b). See also *The Economist* (2013a, 2013b).
6. For example, Ivanplats, a new platinum mine in South Africa's Limpopo province, has recognized that mine mechanization reduces the need for a large pool of permanent workers. For this reason, Ivanplats has pledged increased investment in several infrastructure projects for the community.
7. The distinction between rights- and service-based demands follows Arce (2014).
8. The Ahafo mine is located approximately 300 kilometers northwest of the capital city, Accra.
9. Several authors studying South Africa make note of the rise of protest activity that has become broadly known as "service delivery" protests (see Nyar & Wray 2012). Conceptually, "service delivery" protests are in congruence with service-based mobilizations insofar as contentious activity becomes a bargaining tool to achieve objectives or policy demands. These protests are not in opposition to extraction, but rather seek material improvements, such as a better provision of social services or higher wages for mine workers.

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10. This observation comes from a number of in-depth focus groups and interviews with members of the Royal Bafokeng Nation of South Africa conducted during 2015. The interviews sought to explore local attitudes toward resource extraction.
11. The following countries are included in the analysis: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Democratic Republic of Congo, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.
12. Protests are measured as demonstrations, riots, and strikes. Protests that occurred in different locations of a state are counted as separate events. Protests that span multiple days but are related to the same issue are coded as a single event. Protests in the dataset are not restricted to mobilizations over the extraction of natural resources. Restricting protest to contentious episodes involving resource extraction provides little variation on the main dependent variable of interest.
13. The data on mineral income was available up until 2006, and includes antimony, bauxite, chromium, copper, gold, iron ore, lead, manganese, mercury molybdenum, nickel, silver, tin, tungsten, and zinc. The variable "Mineral Income" excludes oil.
14. The data related to the variable "Minerals" was available up until 2010, and includes tin, gold, lead, zinc, iron, copper, nickel, silver, bauxite, and phosphate. The variable "Minerals" also excludes oil.
15. However, as previous research has shown, these figures underreport the mining activities that take place in the informal sector, such as artisanal mining. It is likely that informal mining may lead to clashes over demands for rights as a consequence of environmental risks or damages. Protests over demands for services, however, are unlikely, because informal mining is harder to tax than large-scale mining (see Le Billon 2008).
16. A negative binomial model more accurately models count data than ordinary least squares regression because it accounts for a high level of observations with a value of zero. By holding the intercepts fixed, we are better able to account for country-level errors and potential omitted variables. This is a more stringent test of our hypothesis than random-effects modeling. Moreover, the alpha parameters are significant with $p<.000$, which suggests overdispersion in the dependent variable.
17. This variable ranges from a hypothetical 0 (a fully homogeneous society) to 1 (a fully heterogeneous society).
18. In the analysis, race is a categorical variable coded as 1 for black Africans.

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