Contracting Beyond the Market: Property Rights, Externalities, Historical Conflict, and Contractual Agreements between Firms and Nonmarket Stakeholders

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ABSTRACT:

Despite firms' growing engagement of nonmarket stakeholders—such as local communities and nongovernmental organizations—there has been little research on the emergence of contractual agreements between firms and nonmarket actors. Given that a very large number of such contracts are theoretically possible but only a small number exist, we seek to understand what factors explain the use of contracts to govern *some* firm-stakeholder relationships but not others. We ground our inquiry in transaction cost economics, which views governance as a means to infuse order into a relation where potential conflict threatens value creation. We propose that the property rights, externalities, and history of conflict that define the relationship between a firm and a nonmarket stakeholder influence the potential for conflict between them and therefore the probability of a contract to govern their relationship. We collect novel data on the location and relationships between indigenous communities and mining firms in Canada to identify a plausible exhaustive set of indigenous communities "at risk" of signing a contract with a mining firm. We measure the three factors defining the relationship between a firm and a local community by relying, respectively, on historically assigned property rights over a mining area, the mine-community colocation in a watershed, and archival records of protests and lawsuits. We find support for our propositions by examining which of the 5,342 dyads formed by 459 indigenous communities and 98 firms signed 259 contracts between 1999 and 2013.

INTRODUCTION

Recent years have witnessed both increasing levels of tension between firms and some of their nonmarket stakeholders and unprecedented levels of collaboration between them. Growing managerial attention to nonmarket issues and academic research on firms' nonmarket strategies (see Dorobantu, Kaul, et al. 2017 for a review) provide additional recognition that a firm's ability to generate and appropriate value is, at least in part, conditioned by the level of political and social consent for its operations—that is, by the support of its nonmarket stakeholders. To secure such consent, firms intensified their lobbying and campaign contributions, devoted resources to corporate social responsibility programs, collaborated with nongovernmental organizations, and paid more attention to the communities surrounding their operations. While many of these efforts are ad hoc and informal, a growing number of firms are formalizing their interactions with nonmarket actors by developing contractual agreements.

A contract is defined as "an agreement between two or more parties that is binding on those parties, to the degree that to renege on the agreement will be costly" (Argyres and Liebeskind 1999, p. 51). Contracts between firms and their stakeholders in the market space—employees, suppliers and consumers—have been the subject of extensive study by scholars working at the intersection of law and economics, including by those building on transaction cost economics (TCE) (Williamson 1985) and property rights theory (Hart 1995, Hart and Moore 1990). By contrast, contractual relationships between firms and nonmarket stakeholders, which require the alignment of private *and* public interests (Kivleniece and Quelin 2012, Mahoney et al. 2009), have received little attention (King 2007). Given that a very large number of contractual agreements with nonmarket actors are theoretically possible but only a small number of such contracts exist, we seek to understand what factors lead firms to sign them.

To answer our research question *When do firms and nonmarket stakeholders use formal contracts to govern their relationship?* we extend research on firm-stakeholder relations by building on prior work in TCE. We start from the premise that "governance is a means by which to infuse *order* in a relation where potential *conflict* threatens to undo or upset opportunities to realize *mutual* gains" (Williamson 1999, p. 1090, emphases in the original). Conflict within a relationship is rooted in the divergence of underlying

interests, which may be particularly acute in relationships between a firm and a nonmarket stakeholder (Mahoney et al. 2009), and in the possibility that either or both entities behave opportunistically (v. Werder 2011). TCE's emphasis on long-term cooperation as a way of minimizing costs in economic transactions is a useful lens for examining the governance of firm-stakeholder relations (Ketokivi and Mahoney 2016). Absent governance mechanisms to enhance cooperation, conflicts between a firm and a nonmarket stakeholder (*e.g.*, protests, boycotts, lawsuits) affect both the firm's value (Franks et al. 2014, Henisz et al. 2014) and the stakeholder's welfare (Amengual 2018). Because both firms and stakeholders prefer to minimize the costs associated with such disruptions, the higher their probability, the stronger the firm's and the stakeholder's incentives to find ways to minimize the risk of conflict between them.

To align their interests and reduce conflict within a relationship, exchange partners decide between various modes of governance, ranging from market exchanges to long-term contracts and hierarchical structures (Williamson 1991). In the context of a relationship between a firm and a *nonmarket* stakeholder, spot-market transactions to obtain the stakeholder's cooperation (*e.g.*, a local community's consent for a project) are impossible. Hierarchy is also not feasible: a firm cannot acquire or merge with a local community or a nongovernmental organization. As a result, transactions between them require non-hierarchical, "hybrid" forms of governance such as alliances and long-term formal contracts. Restricting our attention to formal contracts, we theorize about the dimensions of a firm-nonmarket stakeholder relationship that heighten the potential for conflict and therefore the need for such contracts.

We develop our hypotheses by emphasizing, as King does, that "the recognition of post-contractual problems influences how firms structure their 'relations' with stakeholders" (2007, p. 892). The locus of our inquiry is the attributes of the *relationship* between a firm and a nonmarket stakeholder that affect the perceived hazards within long-term, asset specific transactions and therefore the likelihood of conflict within the relationship. We posit that three attributes of the relationship between a firm and a nonmarket stakeholder affect perceived hazards: the stakeholder's property rights over an asset sought by a firm; externalities, or the impact of the asset's use on the stakeholder; and, the history of conflict between the firm and the stakeholder. We propose that, for similar types of transactions, differences in

these relationship attributes affect the probability that a firm will use a formal contract for long-term relationships. We argue that stronger property rights and negative externalities increase the risk of conflict, leading firms and stakeholders to sign formal contracts that provide a mutually agreeable framework for long-term cooperation. In addition, we argue that the history of conflict in a relationship also increases the use of contracts between firms and nonmarket stakeholders, albeit via a different mechanism. Historical conflict indicates that past mechanisms of governance were insufficient in governing the relationship (Lumineau and Oxley 2012) and need to be supplemented with formal contracts that clarify responsibilities and specify channels for dispute resolution.

Among the challenges of examining the choice to contract with nonmarket stakeholders is identifying nonmarket stakeholders that are "at risk" of entering into a contractual relationship with a firm. To overcome this challenge, we focus our study on a rather unlikely candidate for a contractual partner for a firm: local communities. Local communities have a set geographic location, property rights over local land, strong awareness of externalities from local development, and possibly a record of conflict with past developers. In a number of industries (*e.g.*, agriculture and forestry; mining, oil, and gas; real estate), contracts with local communities, known colloquially as community benefit agreements (CBAs),[1] are a widespread industry practice. Nonetheless, because CBAs are costly to negotiate and implement, a firm cannot sign contracts with all local communities in close proximity to its operations.

To investigate how variations in the dyadic relationship between a firm and a community affect the probability that they will sign a contract, we further limit our research design to a single industry (mining) and group of stakeholders (indigenous communities) in one country (Canada).[2] In analyzing more than 5,300 dyadic relationships between 98 mining firms and 459 indigenous communities in their

[1] We use the term CBA to also include agreements known as community development agreements (O'Faircheallaigh 2015) and impact and benefit agreements (Sosa and Keenan 2001).
[2] We use the term *stakeholder* to refer to "groups and individuals who can affect, or are affected by, the accomplishment of organizational purpose" (Freeman 1984, p.25). In using this term, we do not seek to diminish the rights of the indigenous people of Canada entrenched in the Canadian Constitution nor, where applicable, their sovereignty.

proximity, we seek to explain how the property rights, environmental externalities and historical conflict characterizing these relationships influenced the signing of 259 CBAs between 1999 and 2013.

Our research builds upon and seeks to contribute to distinct but related streams of strategy research. First, stakeholder theory has long argued that the cooperation of different stakeholders is a necessary condition for firm survival (Clarkson 1995, Freeman 1984) and has sought to understand "what kinds of relationships [managers] want and need to create with their stakeholders" (Freeman et al. 2004). Building on previous work that employs TCE as a lens to address this question (Freeman and Evan 1990, Ketokivi and Mahoney 2016, King 2007), we show that even when a firm interacts with seemingly similar stakeholders (*e.g.*, indigenous communities), the governance of a firm's relationship with one stakeholder (*e.g.*, community A) may differ from the governance of the firm's relationship with a seemingly similar stakeholder (*e.g.*, community B) because of differences in the property rights, externalities, and historical conflict defining their respective relationships.

Second, we aim to contribute to strategy research on contracting (Argyres and Mayer 2007, Poppo and Zenger 2002) by showing that various bundles of privileges contained within property rights (Asher et al. 2005, Coase 1960) have different effects on the probability of formal contracting. We also show that contracting for externalities occurs *ex ante* (*i.e.*, prior to observance of externalities) when high asset specificity makes one party subject to hold-up if conflict can arise from externalities. In addition, we build on research on the history of an exchange relationship (Kalnins and Mayer 2004, Lumineau and Oxley 2012) to suggest that past conflict, which indicates governance misalignment (Sampson 2004), increases the probability that a firm and a nonmarket stakeholder will use a contract to govern their relationship.

Finally, our study adds to a growing stream of research on the distribution of value by examining the conditions under which a local community captures value from a project through a contract with the firm. Despite growing attention in strategy research to the relationship between value creation and value capture by different stakeholders (Coff 1999, Gans and Ryall 2017), value capture by stakeholders *outside* the value chain—*i.e.*, *nonmarket* stakeholders – has been discussed theoretically (Chatain and Plaksenkova forthcoming, Garcia-Castro and Aguilera 2015), but has not been examined empirically thus

far. We seek to advance this research by highlighting the attributes of a relationship between a firm and a nonmarket stakeholder that increase the probability that the nonmarket stakeholder will capture value from its relationship with the firm.

CONTRACTUAL AGREEMENTS WITH NONMARKET STAKEHOLDERS

A contract seeks to align the expectations of the parties involved in an exchange and to reduce their respective incentives to behave opportunistically. Contracts clarify each party's obligations under a wide (but nonetheless incomplete) range of future conditions and the mechanisms for resolving potential disagreements. They enable exchange partners to jointly define a mutually agreeable framework for their interactions and thus to better govern their relationship (Schepker et al. 2014). As Mayer and Xing (2017, p. 101) emphasize, "contracts need to provide incentives for both parties to fulfill their promises, seek to prevent costly disputes from arising, and provide a mechanism to resolve disputes which arise from opportunism or from honest misunderstanding in spite of best efforts (Macaulay 1963, MacNeil 1973)."

Contractual relations between firms and nonmarket stakeholders are no different. Both firms and their nonmarket stakeholders can behave opportunistically in their exchange relations (v. Werder 2011). For instance, firms can opportunistically reduce environmental pollution in wealthier communities but not in others (Kalnins and Dowell 2017), neglecting their broader commitments to behave responsibly. Nonmarket stakeholders, too, can behave opportunistically towards firms, as when a government alters policies affecting multinational investments (Henisz and Williamson 1999, Vernon 1971) or when local communities demand compensation from large energy and infrastructure projects by threatening to disrupt them. Contracts reduce these hazards by enabling the firm and stakeholder to reach a shared understanding about the terms of their exchange and providing the mechanisms for future conflict resolution.

However, whereas stakeholders within the firm (employees, shareholders, and managers) and within the value chain (suppliers and customers) typically have formal contracts with the firm, stakeholders outside the value chain—*nonmarket* stakeholders—typically have only implicit (Hill and Jones 1992) or informal (Argyres and Liebeskind 1999) contracts with the firm. They "supply the firm with resources on the *implicit (tacit)* understanding that their claims on the organization will be recognized" (Hill and Jones

1992, p. 140, emphasis added). Whereas implicit contracts can suffice to govern the relationship between a firm and a nonmarket stakeholder when their interests are aligned and the risk of opportunism is low, these do not prevent the escalation of conflict when interests diverge and the risk of conflict is high (Dorobantu, Henisz, et al. 2017).

In this paper we ask which nonmarket stakeholders—specifically, which local communities—are brought into explicit long-term contracts with a firm. TCE is a useful theoretical lens for this inquiry because of its comparative analysis of governance mechanisms and its emphasis on long-term cooperation (Ketokivi and Mahoney 2016). Focusing on the transaction as the unit of analysis, TCE proposes that transactions exhibiting different levels of asset specificity, frequency, and uncertainty are aligned with governance structures with different levels of safeguards (Williamson 1991, 1996). Boundedly rational actors, who can foresee possible opportunism but not all specific disturbances, select governance mechanisms that help them minimize conflict and maintain the integrity of their relationship. A party to an exchange that makes a significant investment in idiosyncratic assets (*e.g.*, a mining firm) favors formal governance with considerable safeguards and adaptive mechanisms for unanticipated disturbances.

In our context—the exchange relationships between mining firms and local communities—transactions are characterized by high asset specificity and frequency. TCE proposes that hierarchy should govern these relationships, and yet hierarchical governance is not possible in such contexts because of the *nonmarket* nature of the exchange partner: firms cannot "internalize" their relationships with local communities by acquiring or merging with them. When conditions favor hierarchy but hierarchical governance is not possible, partners are likely to opt for formal, long-term contracts that offer "special adaptive mechanisms to effect re-alignment … when beset by unanticipated disturbances," (Williamson 1991). We propose that firms and nonmarket stakeholders are likely to replace implicit contracts with formal contracts when a high risk of conflict prevents the development of cooperative relationships with mutual gains.

Contracts with local communities

We focus our theoretical attention and empirical analysis on contractual relationships between firms and one type of nonmarket stakeholder: local indigenous communities. By definition, local

communities are critical stakeholders. All firms are affected by and affect the welfare of the communities in close proximity to their operations. In certain industries—especially those involving intensive use of natural resources (*e.g.*, agriculture, forestry, and fishing) or their extraction (*e.g.*, mining, oil, and gas) and those where large physical developments disturb the local community (*e.g.*, infrastructure, real estate), the interests between private firms and local communities diverge frequently. Conflict between a firm and a local community group can lead to costly disruptions and delays for the firm and significant costs for the community. For instance, protests by the Standing Rock Sioux indigenous community in North Dakota and other groups supporting them led to substantial delays in the construction of the 1,900 km Dakota Access Pipeline, considerable expenditures by the state of North Dakota on security forces and clean-up efforts, and significant disruptions and revenue losses for the Standing Rock Sioux Tribe.

To limit the risk of conflict, many firms in these industries have used contractual agreements known as community benefit agreements (CBAs) to govern their relationships with local communities (O'Faircheallaigh 2013). Firms have negotiated such contracts in extractive industries worldwide, in the development of onshore windfarms in the United Kingdom and of large real estate projects in the United States. In the Canadian mining sector—the empirical context of our research—mining firms and indigenous communities have signed over 300 CBAs.

Contract negotiations allow firms and communities to define the terms for the development of a mining project, the responsibilities of each party, and the means to resolve disagreements. The resulting CBAs exhibit several characteristics that are consistent with Llewellyn's concept of a contract as "a framework highly adjustable, a framework which almost never accurately indicates real working relations, but which affords a rough indication around which such relations vary, an occasional guide in cases of doubt, and a norm of ultimate appeal when the relations cease in fact to work" (1931: 737, cited in Williamson 1991). A reading of two CBAs from Canada that have been made public suggests that their overall objective is to establish such a framework. One CBA purports "to establish: (a) the principles and framework for a long-term working relationship between Cameco, AREVA and Pinehouse with respect to the Operations, building upon existing programming" (Clause 2.1 of CBA between Pinehouse, Kineepik Metis, Cameco

Corp., and AREVA Resources Canada Inc.). Another CBA, the Inuit Impact Benefits Agreement between Agnico-Eagle Mines Ltd. and the Kivalliq Inuit, seeks to "establish a positive working relationship and effective channels of communication between the Parties" (Clause 2.1(d)).

The CBAs also delineate dispute resolution procedures. The Cameco, AREVA, and Pinehouse agreement, for instance, specifies a sequence of steps in case of discord between parties, namely: the parties to the agreement refer the dispute to their respective leadership, followed by non-binding mediation, and finally, arbitration (Clause 7.1 Dispute Resolution, subsections b, d, and e(i)). Similarly, the Agnico-Eagle Mines Ltd. agreement specifies dispute resolution mechanisms beginning with informal resolution by the agreement's Implementation Committee and ending with arbitration (Clause 3.15 a to c). As such, these agreements conform to neoclassical contract law, which seeks to resolve conflict through "arbitration rather than the courts" (Williamson 1991).

The signing of a formal contract between a firm and a local community is also an unambiguous signal that the local community captures some value from its relationship with the firm, and that the firm prefers this distribution of value to assuming the risks associated with conflict with the local community. By signing a CBA, the community consents to the project's development under the agreed conditions. In exchange, the CBA enables the community to appropriate value in several ways: through financial disbursement through fixed-amount payments, revenue sharing, or profit sharing; through local employment and training opportunities, ensuring that members of the local community capture value through jobs; and through local procurement that gives local suppliers preferential treatment, thereby creating additional channels through which the local community can appropriate value from the project. The Voisey's Bay CBA, for example, is estimated to disburse between 1.35% and 3.9% of the mine's gross revenues to signatory communities (O'Faircheallaigh, 2015a).

CBAs, however, are costly to negotiate and implement. A firm will therefore use CBAs selectively to govern its relationship with *some but not all* of the communities in close proximity to its operations. We focus our research question on this choice of a formal contract to govern some community relations, but not others. In answering this question, we acknowledge that the costs of negotiating and enforcing a contract vary

(and we control for them empirically by incorporating community characteristics in our estimation), and we focus our theoretical inquiry on the potential for conflict in a firm-stakeholder dyadic relationship. Specifically, we consider how the likelihood that a firm chooses a formal contract to govern its relationship with a local community varies with three dimensions defining their relationship: (1) the property rights of the community over assets valuable to the firm; (2) the environmental externalities involved in their exchange relations; and (3) the conflict in the historical relationship between them.

Property rights and contracts between firms and nonmarket stakeholders

We begin with the idea that property rights are *bundles of rights*. Specifically, property rights typically include three privileges: (a) the right to use the asset (*usus*); (b) the right to appropriate returns from the asset (*usus fructus*); and (c) the right to change its form, substance, and location (*abusus*) (Libecap 1989). As such, important differences exist between stakeholders in the range of privileges afforded by the property rights they possess. For instance, private citizens may have full property rights to their homes, but only use rights to a public park. In our empirical context—indigenous communities in Canada—the degree to which each privilege is contained in communities' rights over land varies for historical reasons (Asch 1997). While some communities possess the full bundle of rights, others have only use rights, and still others have no property rights to their ancestral lands.

We argue that the differences in the privileges contained in a stakeholder's property rights—in this case, to an asset that a firm seeks to use—impact the likelihood that the firm and the stakeholder will use a formal contract to govern their relationship. Where a stakeholder possesses full property rights to an asset (*usus*, *usus fructus*, and *abusus*), the stakeholder can restrict the use of the asset by others. As Hart (1989, p. 1765) explains, "ownership of an asset goes together with the possession of residual rights of control over the asset; the owner has the right to use the asset in any way not inconsistent with a prior contract, custom, or any law." When a stakeholder has full property rights over an asset that the firm needs for an investment, the contract is a mechanism to transfer use rights to the firm. For instance, if a firm wants to build a mine that requires the use of private land, the land owner has, by law, full property rights and can use the land "in any way not inconsistent with a prior contract, custom, or any law." She has the right to restrict the access and use

of the land by others. She can also choose to transfer her property rights to another party either in full (through a sale) or in part (through a leasing agreement). A firm interested in developing a mine on that land would have to negotiate terms for accessing and using the land with the land owner, or assume the risk of conflict with this stakeholder.

It is hardly a novel idea that a formal contract is an efficient governance mechanism where stakeholders own assets valuable to the firm, but the scenario becomes more complex when the stakeholder does not possess full property rights to the assets. A stakeholder may possesses only use rights (*usus*) to an asset. For instance, community members have only use rights to a public municipal park. Use rights do not afford the stakeholder the right to restrict others' use of the asset, but they give the stakeholder bargaining power if others' use of the asset impinges its own use rights. Such bargaining power exposes the firm to "behavioral uncertainty" (Williamson 1985) or the risk that the stakeholder could behave opportunistically towards the firm. The stakeholder, having observed the firm making a site-specific investment on land where the stakeholder possesses use rights, may subsequently try to extract rents from the firm, arguing that the firm has impinged the stakeholder's use rights. While such situations are likely an exception, from a TCE perspective "even the exception warrants attention and safeguards when the stakes are high [… because] opportunistic types cannot be identified *ex ante*" (Ketokivi and Mahoney 2016, p. 129). For investments that involve high asset or site specificity, an increase in the probability of opportunism "makes it more imperative that the parties devise a machinery to 'work things out'" (Williamson 1985, p. 60). In our context, CBAs provide such a machinery by establishing an adjustable framework for long-term cooperation. Thus, where the local communities possess use rights to the land on which a firm makes a site-specific investment, the firm will likely seek a formal contract with the community to minimize the behavioral uncertainty that the stakeholder's use rights introduce to the transaction.

When a stakeholder has only use rights to an asset (*e.g.*, land), the probability of formal contracting is lower than when it has full property rights, but higher than when it has no property rights. This suggests an ordering of probabilities of formal contracting that mirrors the ordering of privileges contained in a stakeholder's property rights. In our empirical context, we expect to observe CBAs when the mining firm's

operations are located on land over which the local community has full property rights, and, to a lesser extent, when the community has use rights to the land; in contrast, CBAs are least likely to be signed when the local community has no property rights over the land. We hypothesize that:

Hypothesis 1: The probability that a firm signs a contract with a community increases with the bundle of privileges contained in the property rights defining their relationship.

Externalities and contracts between firms and nonmarket stakeholders

Ronald Coase's highly influential 1960 article "The Problem of Social Cost" drew attention to the problem of externalities, which he defined as "harmful effects on others" as illustrated by the example "of a factory the smoke from which has harmful effects on those occupying neighboring properties" (Coase 1960, p. 1). Coase argued that, even in the absence of government regulation or legislation assigning liabilities for social costs, affected parties would work out a mutually beneficial agreement if transaction costs associated with negotiating and enforcing the agreement were not too high. More recently, Ostrom (1990) made a similar argument about the management of common-pool resources (*e.g.*, common pastures, irrigation systems, and fisheries), which, given their shared or common property nature, are at risk of depletion due to externalities. Ostrom showed that the actors most involved in the use of a resource can establish decentralized institutions (*i.e.*, rules and norms) to govern their use, without intervention from a central authority (Ostrom 1990, 2010, Ostrom et al. 1994).

Coase's argument applies directly to interactions between firms and their nonmarket stakeholders. A firm's interest to pursue its activities, even in the presence of negative externalities, is clearly at odds with the interests of affected stakeholders, who prefer that the firm cease activities that generate externalities. The two parties require a mechanism of governance to align their divergent interests (Kivleniece and Quelin 2012, Mahoney et al. 2009). Coase would expect the firm and the affected stakeholders to negotiate a mutually beneficial agreement in which either the firm would compensate stakeholders for the harm inflicted or the stakeholders would incentivize the firm to discontinue its activity, to avoid inflicting harm. Stakeholder theory offers that under the principle of *stakeholder responsibility*, "when third parties are harmed, they must be compensated, or a new agreement must be

negotiated with all of those parties who are affected" (Freeman et al. 2010, p. 282). Absent such an agreement, stakeholders are likely to disrupt the firm's operations that generate externalities. For investments with high asset or site specificity, disruptions can be costly, with significant consequences for firm performance (Dorobantu, Henisz, et al. 2017).

We build upon Coase's argument that decentralized governance can address externalities (see also Ostrom 1990), proposing that firms and nonmarket stakeholders sign formal contracts *ex ante* (*i.e.*, prior to the occurrence of negative externalities) to mitigate uncertainty in relationships in which negative externalities may disturb long-term cooperation. Forward-looking exchange partners anticipate conflict due to negative externalities. A formal contract minimizes such conflict by offering safeguards to both parties. It compensates the affected stakeholder *ex ante* for assuming the risks of externalities (*e.g.*, water pollution) and makes provisions for monitoring and addressing these externalities. For instance, the Raglan Agreement between Inuit communities in northern Quebec and Société Minière Raglan Du Québec Ltée seeks "to ensure that monitoring of impacts takes place and that unforeseen impacts, or impacts the scope or significance of which are greater than foreseen, are dealt with" (Clause 2.1.5). For the firm making an asset or site-specific investment, the contract reduces the risks of opportunism by the stakeholder, who may demand excessive compensation *ex post*. Moreover, even in the unlikely event that the parties can foresee and address negative externalities through investments in pollution abatement beyond those required by law, the firm may seek assurance (through a formal contract) that the community will not derail the project despite the firm's efforts to reduce externalities.

Building on these arguments, we expect mining firms to sign formal contracts with the local communities that bear the highest risks of environmental externalities from a mine's activities. These activities can be highly polluting and affect the surrounding ecosystem, especially through their effects on water quality and availability. As a result, negative environmental externalities may be considerable, not only for proximate communities, but also for more distant communities that share a watershed with the mine. For these communities, a toxic spill at the mine site or a fracture in the tailings dam can have devastating effects. In the absence of a formal contract between the firm and the community affected by

the mine's negative externalities, the uncertainty and costs of negotiating compensation are significant. A firm is likely to seek to reduce such uncertainty and costs by reaching an agreement with the local community before making site-specific investments. We therefore expect firms and communities to use formal contracts as a governance mechanism when negative externalities define their relationship.

> ***Hypothesis 2:*** The probability that a firm signs a contract with a community is higher when negative externalities define their relationship.

Historical conflict and contracts between firms and nonmarket stakeholders

A central tenet of TCE is that "economic agents have the capacities both to learn and to look ahead, perceive hazards, and factor these back into the contractual relation, thereafter to devise responsive institutions" (Williamson 1996, p. 9). Our first two hypotheses emphasize that firms and nonmarket stakeholders, understanding that the use of assets and the externalities this use generates can create conflict between them, are likely to seek to address this conflict *ex ante* through contractual governance. Central to both arguments is the idea that firms anticipate problems with foresight and opt for contractual agreements that stipulate mutually acceptable conditions for the use of assets and processes to resolve potential conflict when it arises (Ketokivi and Mahoney 2016).

TCE also suggests that firms' abilities to perceive all future hazards and factor these into current contracts are limited. Due to bounded rationality, foreseeing all future contingencies is impossible. Consequently, contracts are, unavoidably, incomplete (Grossman and Hart 1986). Over time, however, transaction partners learn about the sources of conflict between them and revise contracts to better address these risks (Mayer and Argyres 2004). Thus, even when the attributes of the transaction underlying the exchange relationship remain the same, the parties can adjust the governance mechanisms in response to a better understanding of how these attributes affect their conflict.

We argue that the same logic applies when exchange partners choose to adopt a mechanism of governance (*i.e.*, a contract) that they have not used in the past. When two parties interact over time, conflict can emerge because of disagreements over property rights and externalities. Conflict endures or escalates when disagreements are not resolved. A history of conflict is therefore an indicator of

"misaligned governance" (Sampson 2004), whereby extant arrangements are insufficient or ineffective in governing the relationship (Lumineau and Oxley 2012). Maintaining the same governance arrangement would prolong conflict in the relationship, with the two parties continuing to inflict costs on one another. With time, the necessity of finding ways to resolve disagreements becomes more apparent. Thus, just as exchange partners learn to adjust the provisions in their contracts over time (Mayer and Argyres 2004), they also learn that a change in the mechanism of governance may be beneficial.

In our context, the relationship between a mining firm and an indigenous community is shaped by its history. In parts of the world that are rich in natural resources, local communities and mining firms tend to share long histories and, in most instances, some history of conflict. Mining dramatically transforms the lives of those living in local communities, with positive impacts (*e.g.*, jobs and local economic development) that do not always compensate for negative externalities (*e.g.*, water pollution and shortages, and social disruption). Most often, however, local communities became aware of negative impacts only as mining activities unfolded, and they reacted by mobilizing through protests and blockades that disrupted operations at the mine or by pursuing redress through the court or regulatory systems.

Thus, conflict between a local community and a mining firm indicates that the past governance arrangements were insufficient to address the hazards involved in their relationship. Over time, both firms and communities can learn that addressing the sources of conflict *ex ante* is preferable to continuing with existing governance arrangements. Firms learn that even lengthy (and therefore costly) negotiations and contracts with local communities are preferable to the costs of continuing conflict that disrupts operations. Local communities learn that contractual agreements with a mining firm are preferable to having to mobilize to protect their interests and to the social tensions that typically accompany such conflict.

We propose that a contractual agreement between a firm and a community is therefore more likely when the two parties share a history of conflict (*e.g.*, protests, blockades, lawsuits). We hypothesize that:

> ***Hypothesis 3:*** The probability that a firm signs a contract with a community is higher when the two share a history of conflict.

DATA AND METHODS

CBAs are becoming prevalent in a number of industries and countries (Parks and Warren 2009). We focus our empirical inquiry in one country (Canada) to minimize cross-national differences in the enforcement of property rights, regulatory provisions, and the legal underpinnings of CBAs, and in one industry (mining), to control for differences in unobservable industry-level norms around stakeholder contracting. We also focus on one type of stakeholder—indigenous communities—to limit potential endogeneity associated with property rights. The value that a stakeholder can appropriate via property rights to a particular asset (*e.g.*, land, human capital) fluctuates with the value of the underlying asset. Stakeholders with good foresight or information are more likely to hold property rights to valuable assets (*e.g.*, employee invests in valuable human capital through training). We situate our empirical inquiry in the context of Canadian indigenous communities, where the historical assignment of their property rights minimizes potential bias associated with unobservable stakeholder foresight and information.

Specifically, between 1780 and 1921 the British government, and subsequently the Canadian government, signed treaties with indigenous communities to acquire their lands (Alcantara 2003).[3] Through what are commonly called "historic treaties," indigenous communities ceded large tracts of land in exchange for monetary payments and, in some cases, hunting and fishing rights (*i.e.*, use rights) over the land (Sosa and Keenan 2001). Indigenous populations were relocated onto reserves where they received rights to occupy the land (Alcantara 2003). While no comprehensive description of relocation strategies exists (Wilson and Peters 2005), an overarching ideology of separation of indigenous and non-indigenous populations resulted in only 5% of indigenous peoples residing in urban areas in 1901 (Wilson and Peters 2005, p. 399). Because the patterns of colonial settlement determined the allocation of reserve lands, and a community's distant ancestors had agreed to that allocation, these historically imposed land boundaries, which maintain today, were determined in a manner plausibly exogenous to present-day

[3] The treaties signed prior to the 1780s focused on military alliances (*e.g.*, "Peace and Friendship" treaties with the Mi'kmaq and Maliseet tribes between 1725 and 1779); nevertheless, even those indigenous communities were moved to reserves in the mid-1800s.

community characteristics (*e.g.*, foresight). While more recently some indigenous communities have sought greater rights to their ancestral lands by negotiating "modern treaties" with the Canadian government, our results are robust to their exclusion, giving us confidence that our results are not biased due to unobservable community characteristics that may correlate with the possession of property rights.

Within this context, several characteristics recommend mining as a useful industry in which to test our hypotheses. First, because of mining's well-documented negative externalities on water, we can use the co-location of mines and communities' in the same watershed basin to estimate how externalities impact the probability that a firm and a community will sign a contract. Second, in extractive industries geological anomalies that result in mineral formations drive location choice. Unlike the siting of infrastructure (*e.g.*, roads and pipelines) and real estate developments, where firms can locate strategically to avoid conflict due to property rights and externalities, mineral developers must build mines in mineral-rich areas, in locations that maximize the exploitation of the resources in the ground.

Sample

We test our hypotheses using a sample of 124 mines and *all* indigenous communities within a 500 km radius of those mines. We began with a complete list of 187 mines that signed CBAs with Canadian indigenous communities between 1999 and 2013, as reported by Natural Resources Canada (NRCAN), the national government agency responsible for resource development. We excluded mines for which we could not confirm the existence of a CBA by finding their public announcement and mines owned by private firms, resulting in a sample of 124 mines.

We restricted our analysis to the period 1999–2013 because it corresponds to a stable period in the legal interpretation of indigenous rights in Canada. Following the recognition of indigenous rights in the 1982 Constitution Act, the interpretation of indigenous property rights—and, consequently, the security of property rights for resource industries—has evolved through several landmark Supreme Court cases up to 1997 (Keay and Metcalf 2011), and then again with the Canadian Supreme Court's *Tsilhqot'in v. British Columbia* decision in 2014. Focusing our inquiry from 1999 to 2013 ensures that the legal interpretation of indigenous property rights was consistent throughout our study period.

We identify the indigenous communities located within 500 km of each mine in our sample. We employ a 500 km radius because, while almost 90% of CBAs are with communities within 300 km of the mine, slightly over 10 percent of the CBAs are signed with communities located between 300 and 500 km of a mine. In supplemental analysis, we show robustness of our results to smaller distance radii from the mine defining our sample. We use ArcGIS software to determine the geodesic distance between each mine and each indigenous community by mapping the mine location coordinates onto the coordinates of 637 indigenous communities using the *Canadian Aboriginal Lands* map provided in the NRCAN's Geogratis database.[4] In total, 459 of 637 Canadian indigenous communities are located within 500 km of the mines in our sample. The matching of communities to the 124 mines in our sample resulted in 5,342 mine-community dyads, or an average of 43 indigenous communities within 500 km of each mine.

Dependent and independent variables

Dependent variable. Our outcome of interest is a CBA between a firm operating a mine and a proximate community. Therefore, our dependent variable is a dyad-level dummy, coded 1 if a mine-community dyad has signed a CBA, and 0 otherwise (*CBA within firm-community dyad*).

Property rights. To test our first hypothesis, we distinguish between two bundles of property rights an indigenous community can have to the land where a mine is located. In Canada, indigenous communities possess full property rights to land located on modern treaty and reserve lands. Modern treaties, the first of which was signed in 1975, are agreements negotiated between indigenous communities and the Canadian government that delineate the communities' rights with respect to specific lands, including surface and subsurface (*i.e.*, mineral) rights (Sosa and Keenan 2001). Property rights to lands demarcated in modern treaties represent use rights, rights to appropriate returns, and rights to change their form. On reserves, indigenous communities possess *de facto* similar property rights. While the Canadian government retains title of reserves for the use and benefit of indigenous communities, in

[4] For a small number of communities that have neither reserve lands nor modern treaties, we supplemented the lands map with latitude and longitude coordinates for the geographic center of the community, to ensure that we include them in the sample.

practice, however, communities exercise a broad set of rights to reserve lands, including usage and occupancy rights. Band councils, similar to municipal governments, control "economic development, zoning, housing, and most importantly, the administration of reserve lands" (Alcantara 2007).

The second category of rights relevant in our context are "use" rights of signatory communities of certain historic treaties. Of the 70 historic treaties, more than half defined rights to hunt and fish on the lands covered by the historic treaty. We expect these use rights to have less of an impact on the probability of a CBA, because the attenuation of property rights in an asset affects the terms of trade (Libecap 1989, p. 6).

To determine what types of property rights define the relationship between a mining firm and a community near the mine, we used the *Canadian Aboriginal Lands* map, which consists of polygons that depict the administrative boundaries of lands covered by reserves and modern treaties, and the *Historic Treaties Map*, containing polygons of the geographic boundaries of historic treaties. Using the coordinates for each mine in our sample, and drawing a 1 km radius around each coordinate (to better represent the footprint of a mine), we identified whether the land on which the mine was located was located on reserve or modern treaty lands (full property rights), on historic treaty lands with use rights, or on neither (no property rights). Matching each reserve, modern treaty, and historic treaty on which a mine was located to each of the 459 indigenous communities in the sample, we created an ordinal variable of *property rights*, representing communities with full property rights over the land where the mine is located (=2), communities with use rights over the land where the mine is located (=1), and communities with no property rights over that land (=0).

Externalities. We identify communities that are more likely to be subject to negative externalities from the mining project as those located in the same watershed basin as the mine. Given that our interest is in contracts typically signed before the start of mine operations, we cannot rely on measures of observed externalities (*e.g.*, toxic releases) but need to use a measure indicating higher probabilities of externalities *ex ante*. Mining's greatest environmental impact is on water quality and quantity (Franks et

al. 2014), and drainage within a watershed basin carries pollution that originates at the mine, resulting in negative externalities well beyond the originating source of the pollution (*i.e.*, the mine).

To identify whether a mine and a community are co-located in the same watershed basin, we map each community's land boundaries and each mine's geographic coordinates on the *Watersheds in Canada* map available from ArcGIS. The map, based on the Water Survey of Canada data, includes main drainage and sub-drainage areas. The 637 indigenous communities in Canada are located on 135 distinct sub-drainage areas, while our 124 mines are located on 49 sub-drainage areas. Approximately 13% of our mine-community dyads are co-located in the same sub-drainage area. Of those dyads, 20% have CBAs, compared to only 2% in the entire set of dyads. *Externalities* is a variable coded 1 when the mine and community are located on the same watershed sub-drainage area, and coded 0 otherwise.

Historical conflict. To test hypothesis 3, we rely on media reports of conflict events (*e.g.*, protests, lawsuits) by a community against the firm and/or mine. Since the early 1980s, indigenous peoples have engaged in widespread mobilization and legal and regulatory action across Canada, much of which the media has reported (Wilkes et al. 2010). To overcome selection and description bias associated with media reports (Earl et al. 2004), our source list includes the entire Factiva database, covering over 25,000 media outlets and press wires. We also rely only on the "hard facts" of the event (*e.g.*, who, what, and when), which is relatively accurate in media reports (Earl et al. 2004: 65). We searched Factiva for reports where the community name appears within 10 words of terms associated with mobilization (*e.g.*, strike, rally, demonstration, protest, and blockade) (Wilkes et al., 2010) or legal and regulatory action (*e.g.*, petition, grievance, investigation, injunction, lawsuit, legal action, and court). We read each article, to ensure that it referred to conflict, and coded the date when the conflict took place as well as the target of the conflict (*e.g.*, firm, mine, and government). *Historical conflict* is a variable coded 1 if the community engaged in conflict targeting the firm or the mine within the past 10 years, and 0 otherwise.

Control variables

We control for a number of additional factors likely to impact contract formation between a firm and a community. At the dyad-level, we control for the geodesic distance between the nearest land

boundary of the community and the mine, which we expect to drive contract formation and correlate with externalities and possibly conflict (*i.e.*, communities closer to the mine may find it less costly to set a blockade). We measure *mine-community geodesic distance* in hundreds of kilometers.

At the community level, we control for the community's involvement in past conflict events other than those targeting the focal mine, because firms may be motivated to sign CBAs in situations with an elevated risk of future mobilization or legal action by the community. Repeated episodes of mobilization build capacity for future collective action (McAdam 1982) and lower its costs (Rowley and Moldoveanu 2003). Therefore, even in instances where a firm or its mine have not been the target of protests or legal action, managers may attribute higher risks to communities with a history of engaging in such conflict with other parties (Dorobantu and Odziemkowska 2017). Using the data collected for the historical conflict variable, we determined the community's *past conflict* as the sum of all unique media-reported conflict or legal and regulatory action events in which the focal community participated over the previous 10 years, not including those targeting the focal firm or mine.

We also expect that communities learn through their own past experiences with CBAs and through those of other proximate communities. A community's past experience with CBAs facilitates their use in the future, as the community becomes familiar with the negotiation process, and the observance of proximate communities' CBAs increases information diffusion about value-capture opportunities through CBAs. Therefore, we control for the focal community's experience by summing the number of CBAs it has signed (*community's past CBAs*) with other mines, as well as the number of CBAs signed by communities within 300 km of the focal community (*proximate community CBAs*).

We also control for several socio-demographic characteristics of the community that may predict a CBA. We control for the community's *population*, and log its value to adjust for the skewness of the data. We obtain population data from Aboriginal Affairs and Northern Development Canada (AANDC), the government agency responsible for indigenous issues in Canada, which has a statutory duty to maintain a record of all registered indigenous persons under the *Indian Act*. We control for the *employment rate* of indigenous peoples in the community, which we obtain from the 2006 Census,

because it speaks to the degree to which the community is poised to capture positive externalities from the mine in the form of local employment. Finally, we control for the percent of indigenous residents that can speak an indigenous language (*indigenous language speakers*), which we obtain from the 2006 Census, to approximate the residents' reliance on the surrounding land (*i.e.*, their reliance on hunting and fishing to meet food and other needs).

Estimation

To examine the impact of firm-community relationship attributes (*i.e.*, property rights, externalities, and history of conflict) on the firm's choice of community with which to sign a CBA, we estimated McFadden's discrete choice model (McFadden 1974). Also known as the conditional logit, this model uses variation in attributes across potential alternatives (*i.e.*, communities) within the choice set of the chooser (*i.e.*, firm) to estimate the effects of those attributes (see Elfenbein and Zenger (2013) for an application to supplier choice, and Hernandez and Shaver (2019) for an application to acquisition choice). The probability that firm *i* signs a CBA with community *c* from a choice set *s* of alternatives is given by: $\Pr(y_i = c) = e^{\beta x_{ic}} / \sum_{c \in s} e^{\beta x_{ic}}$, where x_{ic} is the vector of dyad-level and community-level attributes that the firm observes about each community. Firm-level covariates are not estimated as they are conditioned out (and therefore controlled for) by the conditional estimator. The choice set *s* includes all communities within 500 km of the mine, but as we discuss below our results are robust to smaller choice sets defined by smaller distances. Because the alternatives across our choice sets are not identical, β indicates whether a community's attributes increase or decrease the likelihood of a CBA but not the magnitude of the effect. Therefore, following Hernandez and Shaver (2018), we use a linear probability model with choice set fixed effects and robust errors clustered at the mine level to interpret magnitudes.

Acknowledging that McFadden's discrete choice model is implicitly cross-sectional and thus removes potentially meaningful variation in our time-varying community and firm-community covariates, we also estimate a panel logistic regression traditionally employed in alliance research. Specifically, we use the conditional maximum likelihood estimator for fixed effects panel logit, which avoids the incidental parameters problem of logit estimators with fixed effects (*i.e.*, dummies) (Greene 2014) and

allows us to control for mine time-invariant unobservable characteristics. In addition to mine fixed effects, we include year dummies and cluster our standard errors at the mine level.

Table 1 shows descriptive statistics and correlations for the variables in our discrete choice model sample.[5] Columns 2 and 3 include the standard deviations of the variables overall and within choice sets, respectively. The correlation matrix shows that CBAs are positively correlated (p=0.000) with the property rights, externalities, and historical conflict that characterize a firm-community relationship.

----- Insert Table 1 -----

RESULTS

We report the results of the discrete choice model described above in Models 1 through 6 in Table 2, while Models 7 through 12 present results for the panel logistic regressions, with heteroscedasticity robust standard errors clustered at the mine level, and mine and year fixed effects. We focus our results discussion on the discrete choice model and assess effect sizes using the linear probability model in Table 3 (Models 13 and 14). Model 1 includes only the control variables, of which the distance between the mine and community is negatively associated with the likelihood of a firm signing a CBA with a community (p=0.000), as expected. Conversely, the community's experience with CBAs is associated with an increase in the probability of a CBA (p=0.004). We test our first hypothesis in Model 2 by including the continuous measure of property rights in the regression. We find that the greater the property rights of the community to the land where the mining project is located, the greater the likelihood that a firm signs a CBA with it (p=0.002). In Model 3 we disaggregate property rights into use rights and full property rights, with the comparison being communities with no property rights. Again, we observe the positive effect of both use rights (p=0.021) and full property rights (p=0.001) on the probability that a firm signs a CBA with a community. Compared with communities with no property rights, communities that have use rights over the land on which the mine is located have a 4.0% higher

[5] Our final sample of 5,739 observations includes 124 mines, of which 15 appear twice in our sample because they signed CBAs in two separate years.

probability of a CBA, while communities with full property rights have 65.7% higher probability. While our finding on full property rights is in line with prior work, we observe several firms that signed CBAs with communities with use rights that were equidistant from other communities with no property rights. For example, in 2011, Canadian Zinc signed a CBA with the Liidlii Kue First Nation for the Prairie Creek Mine. The community has use rights over the mine's land, located 192 km from the community, through its historic treaty (Treaty 11, 1921). Conversely, the Fort Nelson First Nation, located 197 km from the same mine, does not have a CBA. Fort Nelson has no use rights over the land on which the mine is located because its historic treaty (Treaty 8, 1898) does not extend to the area. Neither community is subject to externalities nor has engaged in conflict with the mine.

----- Insert Table 2 -----

We next turn to our second hypothesis, where we posit that firms are more likely to sign CBAs with communities at greater risk of negative environmental externalities. In Model 4, we observe that co-location on the same watershed basin is indeed associated with a higher probability of a firm-community dyad signing a CBA (p=0.006). Communities at greater risk of externalities have a 9.7% higher probability of a CBA, controlling for the distance between the mine and the community. The case of SGX Resources Inc. and two equidistant communities, Mattagami (61 km from the project) and Mattachewan (60 km from the project), illustrates this finding. Although Mattagami and Mattachewan are nearly identical on all other dimensions (*i.e.*, no property rights, no historical conflict with the mine, similar employment rate, population, and experience with CBAs), SGX Resources only signed a CBA with Mattagami, which is located on the same watershed as SGX's mining project.

Finally, in Model 5 we find support for hypothesis 3, that historical conflict with the community increases the probability of a CBA (p=0.000). Specifically, communities that have had conflict (*e.g.*, protest or legal action) with a firm in the past have a 77.5% higher probability of a CBA than those that have not. Fortune Minerals, for instance, signed a CBA with the Tahtlan First Nation, despite the fact that Tahtlan was 50 km further from Fortune Minerals' Arctos mining project than other communities with the same use rights that were equally subject to externalities. A distinguishing feature of Tahtlan was that four

years before the CBA, some of its residents set up a multi-month blockade of Fortune Minerals' project, which resulted in 13 arrests (Carmichael 2005).

Model 6 contains all our hypothesized and control variables. Therein, the property rights (p=0.003), environmental externalities (p=0.010), and historical conflict (p=0.000) defining the firm-community relationship all increase the probability that a firm signs a CBA with a community. Our results remain substantively unchanged in the fixed effects panel logistic estimation reported in Models 7 to 12.[6]

Robustness to alternative estimation, choice sets, and sample

In additional analyses, we test the robustness of our results to alternative estimation techniques, alternatively constructed community choice sets, and mine sub-samples. First, we re-estimate the results using linear probability models (LPM) with choice set fixed effects and robust standard errors clustered at the level of the mine. We do so to facilitate the interpretation of magnitudes from the discrete choice model that we replicate in Models 13 and 14 in Table 2. Additionally, the LPM allows us to cluster standard errors simultaneously on the mine and community (Model 15), to account for possible correlation resulting from communities appearing in numerous choice sets. Finally, an LPM also allows us to test the robustness of our results to the inclusion of community fixed effects (Model 16), effectively controlling for community time-invariant characteristics. Our hypothesized results remain substantively unchanged in all models.

We also investigate the robustness of our results to using samples that are defined by smaller distances from the mine. While communities with CBAs have a mean distance of 127 km from the focal mine, over 10% of the CBAs in our sample are with communities located more than 300 km away from a mine. Therefore, one concern is that our results may change depending on where we draw the boundary around communities that we include in the choice set (*i.e.*, in the estimation sample). Figure 1 plots the sensitivity of the discrete choice model estimates to smaller community choice sets, beginning with only those communities within 130 km of the mine (*i.e.*, the mean distance of communities with CBAs) and

[6] Panel logistic regression results are robust to the inclusion of firm (*e.g.*, experience with CBAs), mine (*e.g.*, mine value), and institutional setting (*e.g.*, media attention to indigenous issues) controls. Results available from authors.

increasing the radius defining the choice set by 10 km, up to 500 km. Both property rights and historical conflict estimates are significantly different from zero (95% confidence intervals), regardless of the distance defining the choice set. Externalities are significantly different from zero in all samples, except in those including only communities closer than 150 km from the mine and those including communities closer than 310 km to 330 km from the mine. Model 17 in Table 3 shows the full model, using a 300 km buffer to define the community choice set; the results remain substantively unchanged.

----- Insert Table 3 and Figure 1 -----

In Model 18 we replicate our baseline model excluding communities without property rights to the land where the mine is located, which may be excluded from a firm's consideration set. In Model 19 we include in the choice set only those communities located within the same province, because regulatory requirements—and accordingly a company's incentives for signing a CBA—vary by province. In both models our hypothesized results remain substantively unchanged. Interestingly, the employment rate of the community is positively and significantly associated with a CBA in these models, suggesting that a community with a better labor supply may be better positioned to capture positive employment externalities through a CBA if it has leverage via property rights or provincial regulatory venues.

In the remaining models, we return to our original choice set defined by a 500 km buffer and re-estimate our baseline model using two sub-samples of mines. First, we investigate how our results change for those mines that we would expect to produce particularly large environmental externalities. Gold and uranium mining are broadly acknowledged to be highly toxic, due to the mobilization of arsenic in gold mining and the radioactive nature of the mineral in uranium mining. While the direction and significance of our results remain substantively unchanged for highly polluting mines (Model 20), the magnitude of the externalities effect is higher, as expected: the presence of environmental externalities is associated with a 14.7% higher probability of a CBA for polluting mines, in comparison to 9.7% for all mines (Model 6). In Model 21, we exclude mining projects located in British Columbia (BC), a province where indigenous rights to land are continuously evolving through the British Columbia Treaty Process, and disputes over

those rights have resulted in particularly acrimonious relations between the province, communities, and developers. Our results remain robust to the exclusion of mines located in British Columbia.

DISCUSSION AND CONCLUSION

Our research investigates how different dimensions of a firm-community relationship—and, more broadly, of a firm-stakeholder relationship—influence the probability that they will use a formal contract to govern that relationship. Specifically, we find, that a firm and a community are likely to sign a contract when the community has full property rights over an asset that the firm wants to use. They are also likely—but to a lesser extent—to sign a contract when the community has use rights over the asset. Second, we find that firms and local communities are more likely to sign a contract when they must address negative externalities that are inherent to their relationship. Finally, we find that firms and local communities are more likely to use a contract to govern their relationship when they share a history of conflict.

Our research builds and extends prior work on contracting and stakeholder relations, as well as on the more recent research on value capture by stakeholders. Scholars in economics and strategy have studied contracts as a mechanism of governance for a long time. Building on property rights theory (Alchian 1965, Demsetz 1967, Hart and Moore 1990) and transaction costs economics (Williamson 1985), this research focused on understanding the choice of different contract designs and their implications (Macher and Richman 2008). We build on this tradition but focus on contracts between firms and nonmarket stakeholders that have heretofore been the subject of little study, and on the first-order question of when firms and communities employ contracts to govern such relationships. In doing so, our work highlights property rights, externalities, and historical conflict as drivers of contractual governance between firms and nonmarket stakeholders.

While we focus on applying prior theory to understanding contractual relationships between firms and local communities, we also extend current theory in two ways. First, we move beyond the typical dichotomization of existent or non-existent property rights and highlight that the use of formal governance increases in the "bundles of privileges" (Libecap 1989) included in a stakeholder's property

rights. Therefore, contracts may be employed not only to transfer residual control rights over valuable assets, but also where use rights alone characterize a relationship. In our context—defined by highly specific transactions between a market and a nonmarket partner—we find that both full property rights and use rights incentivize the partners to use long-term contracts, as a quasi-hierarchical, "hybrid" form of governance between two exchange partners who cannot fully internalize their relationship.

Second, we highlight externalities as another antecedent to contracting in firm-nonmarket stakeholder relations. While externalities play a central role in explaining governance choices, in both the work of Coase (1960) and Ostrom (1990), they have not garnered much attention in empirical research on firm-stakeholder relationships or in contemporary strategy literature on contracting (see King 2007 for an exception). This is likely to be an important oversight, considering that stakeholders are "groups and individuals who can affect, or *are affected by*, the accomplishment of organizational purpose" (Freeman 1984, p.25; emphasis added). We suggest that the discussion of stakeholder governance (Dorobantu and Odziemkowska 2017) should also consider externalities and we provide empirical evidence that these considerably affect the relationships between firms and their nonmarket stakeholders.

Our research also contributes to more recent but growing research on the relationship between value creation and appropriation (Gans and Ryall 2017). As Coff emphasizes, it is "not enough to predict when rent will be generated. In order to predict performance differentials among firms, it is just as important to understand who will appropriate the rent" (1999, p. 120). Research leveraging the theoretical power of cooperative game theory (Brandenburger and Stuart 1996) has sought to illuminate some of the conditions under which different stakeholders appropriate value created by the firm (Chatain and Zemsky 2011, Garcia-Castro and Aguilera 2015, Lieberman et al. 2017). The focus in this research, however, has been almost entirely on stakeholders *within* the value chain—customers, capital providers, employees, suppliers, managers—with limited discussion of the role of governments (Garcia-Castro and Aguilera 2015) and nongovernmental organizations (Chatain and Plaksenkova forthcoming). Our research highlights the conditions under which other nonmarket stakeholders appropriate value. We focus our theorizing and empirical analysis on local communities, but we emphasize that consideration of all nonmarket stakeholders

(communities, nongovernmental groups, and activists) offers an important extension of value creation-appropriation models.

Our examination of contractual agreements between firms and local communities provides insights into the conditions under which local communities are more likely to appropriate some of the value created by a firm, not only indirectly, through jobs and increased local economic activity, but also directly, through financial transfers and contractually defined terms for employment, training, and procurement. Because contractual agreements between mining firms and indigenous communities in Canada are confidential, we can only establish that the local community captures *some* value without being able to identify *how much* value it captures. Measuring value capture in transactions that involve nonmarket stakeholders is a challenge for future research in this area, but research that successfully overcomes this challenge will provide important contributions to our understanding of value distribution among stakeholders and of the conditions that enable "shared value" (Porter and Kramer 2011).

Finally, our research contributes to the growing literature on stakeholder relations and firm responses to stakeholder pressure. Stakeholder theory (Freeman 1984, Freeman et al. 2010) has long emphasized that the cooperation of various stakeholders is critical for the survival of a firm, and empirical research has provided strong support for this claim (Dorobantu, Henisz, et al. 2017, Henisz et al. 2014, Hillman and Keim 2001). Recent research highlights that firm responses depend on the source of pressure (Delmas and Toffel 2008, Doshi et al. 2013, Hiatt et al. 2015, Reid and Toffel 2009) and include a multitude of strategies, from the adoption of more stringent, voluntary self-regulation policies (Dowell and Muthulingam 2017, Lenox 2006, Okhmatovskiy and David 2011) and selective disclosure or misrepresentation of information (Kim and Lyon 2014) to symbolic actions (Marquis and Qian 2013). To the best of our knowledge, the signing of formal contracts as a mechanism to govern the relationships between firms and nonmarket stakeholders has received little attention to date. Our focus on contractual agreements brings us back to stakeholder theory as a paradigm focused on the implicit and explicit contractual relationships between a firm and its stakeholders, and it allows us to clarify the conditions that make formal (explicit) contracts with nonmarket stakeholders more likely.

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Table 1: Descriptive statistics and correlations (N=5,739)

						Correlation										
	Mean	Overall S.D.	Within Choice Set S.D.	Min	Max	1	2	3	4	5	6	7	8	9	10	11
1 *CBA within firm-community dyad*	0.045	0.208	0.191	0	1	1										
2 *Property rights, continuous (H1)*	0.362	0.483	0.339	0	2	0.201	1									
3 *Externalities (H2)*	0.131	0.337	0.323	0	1	0.319	0.194	1								
4 *Historical conflict (H3)*	0.000	0.019	0.018	0	1	0.100	0.007	0.053	1							
5 *Mine-community geodesic distance*	2.945	1.266	1.201	0	5	-0.282	-0.273	-0.473	-0.033	1						
6 *Past conflict*	0.607	1.203	1.138	0	8	0.052	0.149	0.024	0.050	0.014	1					
7 *Community's past CBAs*	0.848	1.973	1.791	0	15	0.132	0.025	0.018	0.042	-0.043	0.019	1				
8 *Proximate community CBAs*	3.802	3.644	2.595	0	19	0.002	-0.023	-0.003	0.005	-0.115	-0.040	0.286	1			
9 *Community population (logged)*	6.781	0.883	0.802	3.689	9.312	-0.013	-0.235	-0.062	0.015	0.108	0.129	-0.062	-0.151	1		
10 *Employment rate (%)*	0.436	0.118	0.102	0.111	0.833	0.062	0.066	0.012	-0.008	-0.020	-0.037	0.150	0.127	-0.310	1	
11 *Indigenous language speakers (%)*	0.280	0.281	0.236	0.000	1.000	0.064	-0.162	-0.034	-0.010	0.122	-0.055	0.200	0.057	0.189	-0.182	1

Table 2: Estimates of Probability of CBA within Firm-Community Dyad

	Discrete choice model						Panel logistic regression (mine & year fixed effects)					
	M1	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**
Independent variables												
Property rights, continuous (H1)		1.612**				1.563**		1.945***				1.858***
		(0.529)				(0.521)		(0.568)				(0.534)
Use rights (H1)			1.626*						2.077**			
			(0.704)						(0.706)			
Full property rights (H1)			3.157**						3.559**			
			(0.986)						(1.346)			
Externalities (H2)				0.741**		0.710**				0.856*		0.745*
				(0.272)		(0.274)				(0.333)		(0.335)
Historical conflict (H3)					15.28***	16.42***					3.105**	3.071**
					(1.279)	(1.289)					(1.060)	(1.005)
Dyad controls												
Mine-community geodesic distance	-2.491***	-2.314***	-2.314***	-2.291***	-2.487***	-2.133***	-2.642***	-2.428***	-2.430***	-2.403***	-2.633***	-2.224***
	(0.285)	(0.280)	(0.280)	(0.291)	(0.287)	(0.288)	(0.290)	(0.281)	(0.282)	(0.293)	(0.289)	(0.286)
Community controls												
Past conflict	0.130	0.112	0.112	0.109	0.115	0.0708	-0.0628	-0.0632	-0.0653	-0.0790	-0.0806	-0.0989
	(0.107)	(0.110)	(0.112)	(0.111)	(0.110)	(0.118)	(0.096)	(0.088)	(0.089)	(0.100)	(0.096)	(0.091)
Community's past CBAs	0.219**	0.231**	0.231**	0.218**	0.217**	0.229**	0.391***	0.386***	0.388***	0.406***	0.394***	0.401***
	(0.076)	(0.077)	(0.078)	(0.074)	(0.077)	(0.076)	(0.048)	(0.046)	(0.047)	(0.050)	(0.048)	(0.048)
Proximate community CBAs	0.138	0.190*	0.190*	0.148	0.135	0.202*	0.0469	0.0509	0.0511	0.0460	0.0463	0.0494
	(0.089)	(0.091)	(0.091)	(0.093)	(0.088)	(0.095)	(0.035)	(0.037)	(0.037)	(0.034)	(0.034)	(0.035)
Community population	-0.0832	-0.0545	-0.0548	-0.0537	-0.0884	-0.0403	-0.0237	-0.0449	-0.0455	-0.00547	-0.0218	-0.0268
	(0.173)	(0.183)	(0.182)	(0.170)	(0.173)	(0.177)	(0.161)	(0.169)	(0.170)	(0.154)	(0.162)	(0.165)
Employment rate	1.767	1.621	1.624	1.925	1.832	1.846	0.417	0.144	0.158	0.528	0.404	0.329
	(1.231)	(1.227)	(1.237)	(1.293)	(1.230)	(1.293)	(1.172)	(1.127)	(1.127)	(1.162)	(1.171)	(1.141)
Indigenous language speakers	0.806	0.551	0.548	0.784	0.826	0.583	0.133	0.0193	-0.00629	-0.00992	0.213	-0.00499
	(0.722)	(0.723)	(0.733)	(0.762)	(0.717)	(0.750)	(0.738)	(0.699)	(0.701)	(0.721)	(0.735)	(0.703)
N	5739	5739	5739	5739	5739	5739	70064	70064	70064	70064	70064	70064
Log likelihood	-277.5	-266.8	-266.8	-272.7	-276.8	-261.9	-1968.6	-1896.0	-1895.5	-1939.7	-1955.6	-1862.7
Pseudo R^2	0.6036	0.6189	0.6189	0.6104	0.6046	0.6259	0.5792	0.5947	0.5948	0.5858	0.5820	0.6018

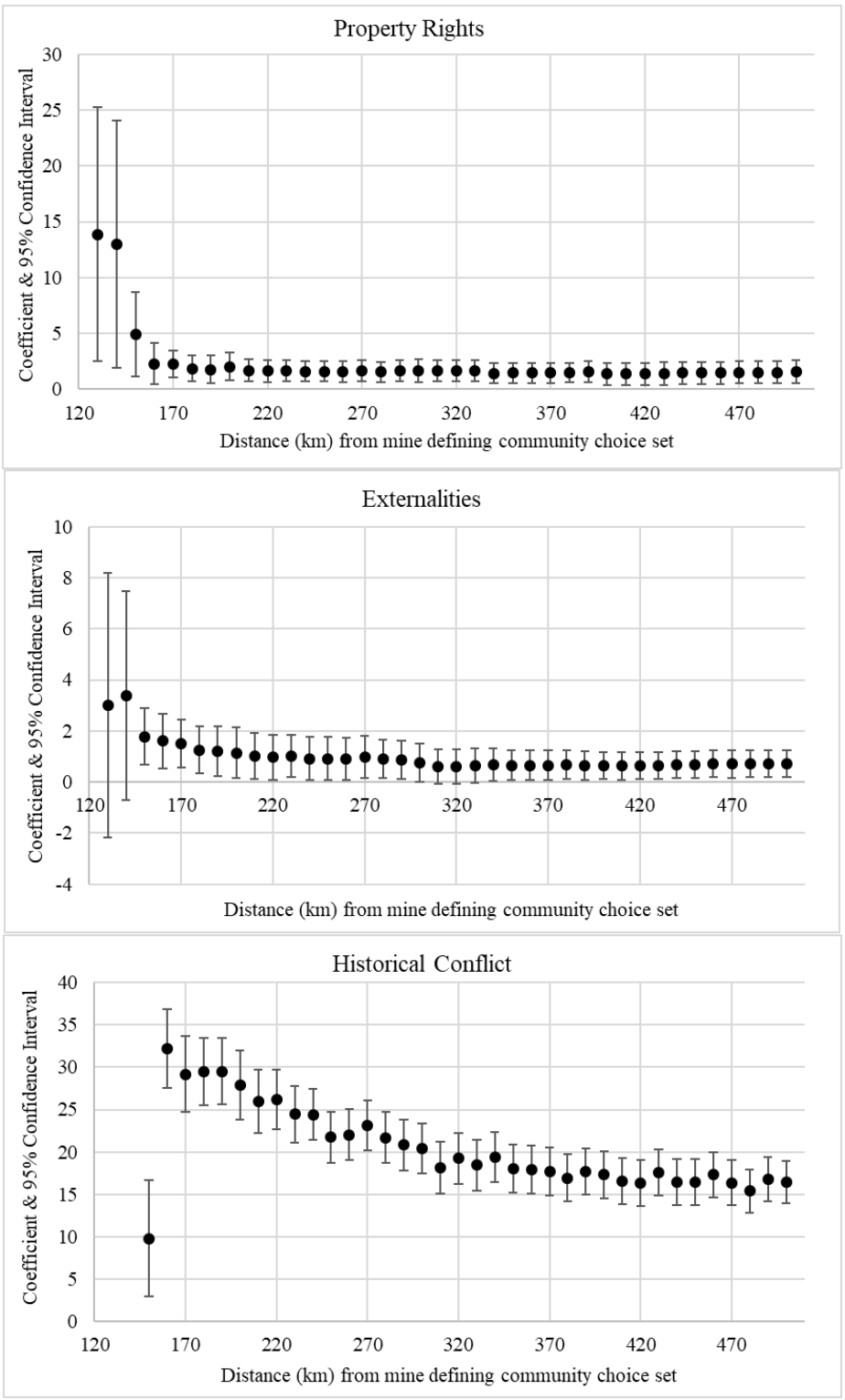
Notes: Models 1 through 6 report results from discrete choice models; Models 7 through 12 report results of panel logistic regression with mine and year fixed effects. Heteroskedasticity robust standard errors clustered at the mine appear in parentheses. +p<0.1; ∗p<0.05; ∗∗ p<0.01; ∗∗∗ p<0.001.

Table 3: Estimation, Choice Set and Sample Robustness of Estimates of Probability of CBA within Firm-Community Dyad

					Discrete Choice Model				
	Linear probability				300km Choice set	Property rights	Same province	Polluting mines	Excl. BC
	M13	**M14**	**M15**	**M16**	**M17**	**M18**	**M19**	**M20**	**M21**
Independent variables									
Property rights, continuous (H1)		0.0519***	0.0519***	0.0863***	1.685**	16.39***	1.392**	1.484*	1.903**
		(0.011)	(0.012)	(0.015)	(0.527)	(1.184)	(0.464)	(0.710)	(0.719)
Use rights (H1)	0.0399***								
	(0.010)								
Full property rights (H1)	0.657***								
	(0.128)								
Externalities (H2)	0.0926***	0.0967***	0.0967***	0.0980***	0.768*	0.726*	0.774*	1.836**	0.780*
	(0.017)	(0.017)	(0.019)	(0.016)	(0.383)	(0.365)	(0.306)	(0.583)	(0.371)
Historical conflict (H3)	0.778***	0.775***	0.775***	0.792***	20.42***	14.32***	16.56***		15.42***
	(0.033)	(0.032)	(0.030)	(0.041)	(1.510)	(1.728)	(1.541)		(1.475)
Dyad controls									
Mine-community geodesic distance	-0.0363***	-0.0362***	-0.0362***	-0.0397***	-3.586***	-1.949***	-2.191***	-2.020***	-2.274***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.398)	(0.305)	(0.285)	(0.584)	(0.360)
Community controls									
Past conflict	0.00545*	0.00472+	0.00472	-0.00528	-0.0410	0.0107	0.0746	0.0316	0.433*
	(0.003)	(0.003)	(0.003)	(0.008)	(0.122)	(0.108)	(0.145)	(0.294)	(0.170)
Community's past CBAs	0.00865**	0.00852**	0.00852**	-0.0218***	0.249**	0.323***	0.334**	0.325***	0.401***
	(0.003)	(0.003)	(0.003)	(0.006)	(0.097)	(0.081)	(0.107)	(0.090)	(0.106)
Proximate community CBAs	-0.00262*	-0.00281*	-0.00281*	0.00530*	0.279*	0.154	0.124+	0.363+	0.0269
	(0.001)	(0.001)	(0.001)	(0.002)	(0.129)	(0.094)	(0.072)	(0.197)	(0.063)
Community population	0.00199	0.00272	0.00272	-0.300*	-0.0195	-0.117	-0.113	-0.0840	0.0258
	(0.003)	(0.003)	(0.004)	(0.121)	(0.238)	(0.219)	(0.171)	(0.494)	(0.215)
Employment rate	0.0569+	0.0589+	0.0589+		1.571	10.07**	5.861*	5.440	7.201*
	(0.031)	(0.031)	(0.034)		(1.480)	(3.463)	(2.631)	(3.680)	(2.864)
Indigenous language speakers	0.0164	0.0154	0.0154		-1.434	1.321+	0.400	3.332*	0.647
	(0.018)	(0.017)	(0.019)		(1.136)	(0.776)	(0.684)	(1.407)	(0.816)
N	5739	5739	5739	5728	2811	1959	4369	1854	4335
Log-likelihood	1875.9	1837.5	1837.5	2447.2	-160.0	-169.2	-223.6	-52.90	-183.5
Pseudo R^2	0.2933	0.2838	0.2838	0.4229	0.6756	0.5589	0.6194	0.7569	0.6650

Notes: Models 13 through 16 report results from linear probability models with choice set fixed effects and Model 16 also includes community fixed effects (11 communities dropped from sample because they only appear once). Model 17 through 21 report discrete choice model results. Heteroskedasticity robust standard errors clustered at the mine appear in parentheses except Model 15 where standard errors are simultaneously clustered and the mine and community level. +p<0.1; ∗p<0.05; ∗∗ p<0.01; ∗∗∗ p<0.001.

Figure 1: Discrete Choice Model Results by Varying Distances Defining Choice Sets



Notes: Figures present the coefficient estimates and their 95% confidence intervals of the discrete choice model results for hypothesized variables using community choice sets defined by different distance radii from the mine. Estimates are unavailable for historical conflict for choice sets below 150 km because no observations of historical conflict exist with communities within 150 km of a mine.