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Measuring accountability in interlocal agreements between Indigenous and local governments

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Abstract

Interlocal agreements are becoming a popular policy tool for facilitating intergovernmental coordination and cooperation in Canada and the United States. Indigenous and local governments are also turning to these agreements despite long histories of colonialism, exploitation and dispossession by the settler State toward Indigenous communities. To what extent do interlocal agreements between Indigenous and municipal governments require stringent accountability measures to facilitate intergovernmental coordination? Using a hierarchical Bayesian item response theory model, we explore this question by analyzing 317 interlocal agreements between Indigenous and municipal communities in Canada. We find that accountability strength varies significantly across agreements, contrary to our expectation that accountability requirements would be strong across agreements due to the long history of colonialism. We also find that some of the variation may be a function of the policy area addressed by each agreement, although this finding is likely the result of measurement uncertainty in our estimates.

1 | INTRODUCTION

Interlocal agreements frequently play an important role in facilitating collaboration across jurisdictional boundaries. Most of the time, these agreements manifest as bilateral, limited-term contracts for service delivery (e.g., fire protection or the construction of infrastructure). Sometimes they involve the joint management of local resources. Interlocal agreements are attractive because risk to participants can be lower and more easily justified to constituents relative to permanent and highly institutionalized forms of regional governance. As a result, these agreements have become increasingly popular across North America and Europe (LeRoux et al., 2010; Warner, 2011; Warner & Hefetz, 2003).

Central to the success of these agreements are accountability provisions that manage risk between the signatories. Edkins and Smyth (2006) propose a continuum of risk-mitigating mechanisms that they think reflects the level of trust between participants of interlocal agreements—from the intangible/informal (e.g., faith and hope) to the tangible/formal (e.g., accountability measures and litigation). Extensive or onerous accountability measures usually indicate that one or both partners lacked the confidence to leave that dimension of the agreement to informal resolution.

Indigenous communities in Canada and the United States have highly complicated relationships with settler governments. Centuries of colonialism centered on land dispossession and acts of cultural genocide through residential schools and other forms of integration and assimilation have wrought social and economic havoc on Indigenous communities, creating mistrust among Indigenous communities toward settler societies and their governments (Asch, 2014; Wilkins & Stark, 2018). Yet in both countries, some Indigenous communities have negotiated and signed interlocal agreements with municipalities to facilitate the creation of new programs and the delivery of key services despite this long, exploitative history and so it is surprising that these agreements are proliferating given that municipalities are extensions of the settler State (Alcantara & Nelles, 2016; Walker, 2008; Webster, 2020).

In this paper, we ask: To what extent are extensive accountability measures required to facilitate the signing of interlocal agreements between Indigenous communities and municipalities in Canada? To answer this question, we use a hierarchical Bayesian item response theory model to measure variation in levels of accountability among 317 Indigenous-municipal agreements in Canada. We also examine whether the policy area at the core of the agreement structures the level of accountability found in each agreement. Our analysis suggests that accountability levels vary substantially across agreements and that land agreements in particular have stronger accountability provisions relative to agreements addressing other policy areas, such as emergency services, libraries, transportation, waste, and water. This effect, however, seems to disappear once measurement uncertainty is considered.

Our paper is organized as follows. First, we canvass the literature on interlocal cooperation and accountability to set up the discussion of our data and methodological approach. Next, we investigate the extent to which these agreements vary in terms of accountability strength and demonstrate the potential of our approach by examining whether the observed variation is structured by policy area. We end by arguing that future research should build on our findings to investigate further the causal mechanisms that might explain the variation we observe across these and other similar agreements.

2 | INTERLOCAL COLLABORATION AND ACCOUNTABILITY

The literature on interlocal cooperation and contracting between municipalities is quite robust (see Feiock, 2007, 2013; Hulst & Andre, 2008; Kwon & Feiock, 2010), whereas the literature on

Indigenous-municipal intergovernmental partnerships is less so (Alcantara & Kalman, 2019; Berg, 2019; Webster, 2020). Both literatures suggest that Indigenous-local agreements address many of the same issues and goals as interlocal agreements between municipalities. Communities sign them to facilitate communication between their governments, establish the joint management of programs and services, coordinate land use planning and economic development, and provide vital municipal services (e.g., garbage collection, water, emergency services, etc.) among other things (Alcantara & Nelles, 2016; Spicer, 2016; Webster, 2020).

As with most contractual agreements, the content of the proposed arrangement often shapes its structure. Inter-local agreements come in a variety of formats, ranging from informal, oral contracts to formal, legal arrangements that create new inter-jurisdictional bodies (Feiock, 2013; Spicer, 2015). The binding of these agreements can be either quite weak or very strong depending on the preferences of actors and the legal restrictions imposed on the arrangement (Nunn & Rosentraub, 1997).

Legally restrictive agreements are commonly sought out for high-value service areas or where there may be a degree of risk (Spicer, 2016). These agreements are legally enforceable and closely adhere to a series of specific rules, generally rooted in provincial and state law (Andrew, 2008). In these agreements, the requirements for each actor are clearly defined and there are often provisions included for the resolution of disputes (Andrew, 2010). Most importantly, these agreements are legally enforceable. Conversely, more open and adaptive agreements operate around localized norms and trust and have less legal recourse for each actor (Shrestha, 2010). These might take the form of oral contracts, informal arrangements or even memoranda of understanding. The benefit of these agreements is that they have more flexible terms and conditions, leaving local actors with the ability to enter and exit relatively painlessly (Spicer, 2016). Formal agreements, by contrast, are more rigid but offer more legal protection.

Underlying much of the process of voluntary interlocal cooperation and contracting is trust. Trust has been shown to be an essential ingredient in the formation of interlocal agreements. Actors and organizations that trust each other tend to have a higher chance of entering cooperative local agreements (Gulati & Gargiulo, 1999). A high degree of trust has also been shown to reduce the costs of monitoring and enforcement (Feiock, 2007). Trust is often a product of familiarity, which past literature has identified as being vital in reaching and maintaining interlocal agreements (see Carr, LeRoux and Shrestha, 2009; Feiock et al., 2009; Shrestha & Feiock, 2009). Ongoing patterns of communication among public officials can not only help governments identify new opportunities to cooperate, but also help to build trust and familiarity (Thurmaier & Wood, 2002). A lack of trust can also put the health of any intergovernmental agreement at risk of termination (Hatley et al., 2015).

Actors and governments that have a prior working relationship may trust each other more than those who do not, ultimately resulting in less need for robust accountability mechanisms to govern interlocal agreements (Gulati & Gargiulo, 1999; Lee, 2021). Communities that have completed multiple agreements over several years, for instance, have likely built a strong working relationship, or at least one in which they find predictable and somewhat stable. This is known as institutionalized trust (Kroeger, 2013), which is closely related to the concepts of institutional knowledge, social learning, and memory, and which is embedded within an institution and sometimes individuals (Rabkin, 2008; Siddiki et al., 2017). This kind of trust may lead actors to repeat the actions and policies of their predecessors, such as seeking less stringent accountability mechanisms, even if they are unaware of the original reason for those actions. Institutionalized trust can form the basis for long-term cooperative relationships and lead actors to be more comfortable initiating new collaborative partnerships. In such cases, the need to embed strict

accountability measures and legal protections in agreements may seem unnecessary to local governments.

Relationships between Indigenous communities and the Crown in Canada—represented by the federal government and the Minister responsible for Indigenous relations—are complex, to say the least, and are often characterized by mistrust and unfulfilled expectations (Abele & Prince, 2003; Papillon, 2012). However, the relationship between Indigenous bands and local actors can be very different. Alcantara and Nelles (2016) have documented the process of cooperation between municipalities and band councils in Canada, finding that interlocal agreements are increasingly common across the country in greater numbers, spanning a range of categories and service areas. They document how individual actors and governments can establish relationships with their counterparts, build "community capital" and even develop a shared common civic identity in certain instances. Not all these relationships are positive, and the authors do present cases where, despite the presence of numerous cooperative service agreements, the relationship between municipal and Indigenous leaders is characterized by mistrust and conflict (2016).

This article challenges and adds more detail to this argument. Where Nelles and Alcantara (2011) assumed that a history of contracting might make future intercommunity collaboration more likely, a deepening of interlocal cooperation through the conclusion of more intensive forms of agreement was not the only possible manifestation of deepening trust. Instead, even when governments choose to limit their cooperative relationships, such as to service agreements, this multiplex reciprocity strategy and trust may lead actors to relax the number of accountability mechanisms in future contracts (Shrestha & Feiock, 2021). Another view is that contracts are designed to mitigate risks to actors and will include such protections as the parties deem appropriate to manage those risks. A complicating factor for both arguments, however, is that all Indigenous peoples in Canada and the United States have suffered through long periods of colonialism and they continue to struggle against the historical and ongoing attempts to dispossess them of their lands, institutions, histories and culture in service of the economic interests of the dominant settler State. As a result, many Indigenous community leaders and members view the State and its actors with deep distrust and suspicion (Asch, 2014; Couthard, 2014; Wilkins & Stark, 2018).

The dominant approach to measuring accountability and other associated concepts has been to rely on additive indices (Dunn & Legge, 2001; da Cruz et al., 2016). Some scholars have focused on using the experiences of decision-makers to evaluate a host of accountability and transparency mechanisms as a Delphi exercise. For instance, Coy and Dixon (2004) created the Public Accountability Index (PAI) on these grounds, relying upon a panel of experts to measure the effectiveness of public annual reporting in eight New Zealand universities. The PAI gathered panel evaluations of a host of indicators, such as accessibility and timeliness, which generated scores for each variable. A similar approach was used by Caamano-Alegre et al. (2013), who used a survey of government officials to gather impressions of budgetary transparency in Spanish local governments. Using 15 equally weighted indicators, the scores from a 5-point Likert scale were summed and built into an overall evaluation. These studies have largely shown the need for more robust public reporting mechanisms.

Others have focused on building indices based on the availability of certain items thought central to holding decision-makers to account. For instance, some authors have focused on openness and access as key drivers of accountability and transparency, prompting the creation of a Disclosure Index (Lourenco et al., 2013), which assesses the availability of 13 items of budgetary

and financial information in municipal government. Each item can score a maximum of three points if the item is highly accessible and in a processable format. Others have pursued a broader transparency and accountability index aimed at better understanding accountability in Spanish local governments based upon a previously established Transparency International Index (Albate, 2013; Guillamon et al., 2011; Vincente et al., 2013), which includes 80 indicators and reports an overall score and five sub scores for each dimension, including openness in economic and fiscal information and transparency in procurement. Each indicator is a binary variable and equally weighted. Many of these studies have demonstrated gaps in accountability and transparency practices, with more specialized mechanisms, like open meeting requirements, being the most absent from local accountability regimes. On the other hand, such indices present inherent challenges to measuring accountability, as each indicator is equally weighted and the resultant estimates are assumed to be without error. We discuss these issues further in the methods and data section below.

To overcome these challenges, we use a hierarchical Bayesian item response theory model rather than an additive index. Using this model, we examine the extent to which accountability levels vary across agreements by the policy area addressed by each agreement. Several studies have found that accountability provisions are more likely to be present in agreements that address policy areas that involve a large budget or an expensive service area, such as infrastructure or water delivery services, or where the potential disruption of the service may have dire consequences (Post, 2004; Stein, 1990). For agreements that fall into these categories, local actors tend to seek out legal protections to insulate themselves from risk or financial hardship (Spicer, 2016). By contrast, open, adaptive agreements are often used for low-value policy areas, such as road maintenance, where the consequences or disruption are minimal, but the need for flexibility is desired (Andrew, 2010). These types of agreements leave certain portions open for future adjustment or contain language broad enough to leave room for renegotiation (Harris et al., 1998). In these instances, the desired flexibility outweighs potential risk of failure or default on the part of one actor (Andrew & Hawkins, 2012).

Similarly, strong accountability provisions are more likely to be found in agreements addressing policy areas (e.g., water and emergency services) in which disruption and interference would be detrimental to community health and have dire consequences (Spicer, 2015). A well-publicized house fire on the Makwa Sahgaiehcan First Nation reserve in Saskatchewan that claimed the lives of two children is illustrative of this argument (Capiral, 2015). The Makwa Sahgaiehcan band council had historically contracted fire services from the Village of Loon Lake Fire Department, but on the night of the fire the Village refused to attend to the fire because the Village government claimed their agreement was voided by an outstanding debt from a previous emergency call (Capiral, 2015). Stronger accountability provisions, therefore, are likely to be present in policy areas that are prone to these kinds of disasters (Spicer, 2017).

Finally, agreements dealing with Indigenous land, such as joint land management partnerships and service contracts that give municipalities access to Indigenous lands to maintain infrastructure, are also likely to include more stringent accountability provisions. Land is central to the lives of Indigenous peoples. It informs their political systems, constitutional orders, and social and economic relationships internally and externally with other communities. Land is at the center of the reconciliation struggle and the Indigenous resurgence movement, and so many communities have fought for the recognition of Indigenous rights and title to their traditional lands, most of which they have lost through historical and ongoing colonial

processes of dispossession (Asch, 2014; Coulthard, 2014). Given the importance of land to Indigenous communities, we expect these kinds of agreements to contain stronger accountability provisions.

3 | METHODS AND DATA

In this paper, we rely upon an original dataset of agreements signed between Indigenous governments and municipalities in Canada. The agreements were collected between 2010 and 2014.[1] In total, 317 agreements were retrieved from the provinces of Alberta, British Columbia, Manitoba, New Brunswick, Nova Scotia, Northwest Territories, Ontario, Prince Edward Island, Quebec, Saskatchewan, and Yukon Territory. While band affairs are monitored by the federal government and the actions of local governments are tightly regulated by provincial governments, both municipalities and band governments are free to enter into a range of interlocal agreement without hindrance from other orders of government. While agreements can be both formal and informal, only formal agreements were included in the database. As noted elsewhere (see Spicer, 2016), informal agreements are difficult to analyze, as they are not legally codified and are generally oral agreements that are likely only known to a handful of local actors. As a result, the exact contents of these arrangements are difficult to ascertain. In contrast, formal agreements are legally codified and detailed in hard and electronic copies, making the components much easier to categorize and empirically compare. Once collected, the agreements were coded to investigate their horizontal accountability dimensions. We recorded several features that are commonly understood to be a standard accountability feature (see Spicer, 2017) from each agreement in the database. These features, along with a brief description and justification, are included in Table 1. Each feature was recorded as met or unmet.

By conceptualizing accountability as a latent construct, we used the accountability features described in Table 1 to estimate the degree of accountability across each agreement. More specifically, we used a hierarchical Bayesian item response theory model to not only estimate the degree of accountability for each agreement, but also generate estimates of each indicator's relationship to the latent concept and measures of uncertainty for each estimate.

This approach offers several advantages over the construction of an additive index (Fariss, 2018, p. 250),[2] which is a more commonly used strategy when measuring agreement accountability in public administration (e.g., Coy & Dixon, 2004). First, the use of an additive index makes the strong assumption that all indicators are *equally weighted*. Second, the resultant measure ignores measurement uncertainty, such that we pretend that we have measured the latent concept perfectly. This practice can be especially problematic when the measure is used in a predictive model. Measurement error can lead to overconfidence or bias in the predictive model estimates depending on whether the error is with respect to the independent or dependent variables and the complexity of the model.[3] We adopt a principled and transparent approach to addressing both concerns. In Section 1 of the Supplementary Information file, we provide additional information about the model specification, as well as the use and interpretation of item response theory models.

The policy area covered by each agreement was coded as belonging to one of several categories utilized in past research, summarized in Table 2 (see Spicer, 2015). From this dataset, we constructed a linear regression model to assess the relationships between policy area and the degree of agreement accountability. Descriptive statistics for the predictive models are provided in Section 2 of the Supplementary Information file.[4] We continue our use of a Bayesian framework for the predictive models, not just to maintain consistency with the measurement model,

TABLE 1 Features of agreement accountability.

Feature	Description	Justification
Annual budget requirement	Requirement in the agreement to prepare and make public an annual budget or accounting of the cost of operations for the agreement over the past calendar or budgetary year	The preparation and presentation of an annual budget allows the public not only a view into how financial resources are allocated, but also the ability to scrutinize the use and value derived of funds (Monfardini, 2010)
Annual report requirement	Requirement to prepare and make public a report or accounting of performance metrics or activities undertaken over the past calendar or budgetary year	Through the creation of an annual report or presentation of performance metrics, community members can assess the value of funds spent at a regularized interval, meeting expectations a regularized report regime (Manes-Rossi, 2019; Steccolini, 2004)
Dispute resolution	Inclusion of set criteria to resolve any potential dispute between agreement partners	Dispute resolution provisions allow for the assigning of responsibilities and creation of resolution that allows members of the public to evaluate partner performance and, if necessary, apply sanctions another forum (eg. Elections) (Spicer, 2015)
Prescribed budget standard	Set standards in the agreement to detail how any budgeting and reporting requirements are to be prepared and presented	Consistent budgeting requirements allow the public to evaluate the allocation of funds and the value derived from the arrangement over time (Ford & Ihrke, 2019; Rubin, 1996)
Private meeting	Requirement for set meetings among the agreement partners, which can be held in private or is not stipulated to be public	The establishment of regular, set meetings allows actors to discuss key functions or evaluation of the agreement. A regular meeting requirement ensures that actors remain bound to the goals and mandate of the agreement (Michels & Meijer, 2008)
Publicly available	The agreement is required to be publicly available	The availability of agreements allows member of the public to review and evaluate their contents, which further allows them to hold public decision-makers to account for possible breach of their contents (Simone et al., 2015).
Public meeting	Requirement for set public meetings among the agreement partners	Public meetings allow for a direct accountability forum where community members would be able to observe deliberations about the administration of these arrangements but also probe decision making (Wang, 2002)
Specific partner roles	The duties and responsibilities of each partner is described in the agreement	Describing the roles of each signatory in delivery, monitoring and enforcement of service and policy areas allows the public the ability to assign credit or blame for the performance of the relationship (Lyons & Spicer, 2018)

but to also provide a principled manner of incorporating the measurement model uncertainty. While the interpretation of the predictive model estimates resembles the frequentist framework, we report the median and 95% credible intervals to summarize the posterior distribution of each estimate. We also indicate whether the credible interval contains 0 (comparable to statistical significance in a frequentist framework).

We estimate two versions of the predictive model. The first model incorporates the measurement uncertainty through three steps: (1) taking 100 draws (values) from the posterior distribution of each estimate of agreement accountability, (2) fitting 100 separate predictive models, and then (3) combining the posterior estimates from each model into a single set of results, which are then summarized in their entirety. This approach can be described as a form of Bayesian multiple imputation and enables the incorporation of measurement uncertainty in the predictive model estimates. The second model uses only the median value of the posterior estimates of agreement accountability as the outcome. This model ignores the measurement uncertainty and generates results that would approximate the inferences derived in a frequentist model. Additional details about the predictive model specifications are available in Section 2 of the Supplementary Information file.

All models were fit using the *brms* package (Bürkner, 2017) in R (R Core Team, 2021). Diagnostics suggest convergence for all models and further information about model estimation and convergence is available in Section 3 of the Supplementary Information file.[5]

4 | RESULTS

We begin by presenting our measurement model results, which are visualized in Figure 1. Panel A visualizes the item characteristic curves (ICCs) for each of the nine indicators used to estimate

TABLE 2 Agreement policy areas.

Policy area	Description
Conservation	All areas of conservation practices in natural or wetland areas, including conservation services and management.
Cooperation	General memoranda of understanding or the establishment of processes leading to future cooperation or agreements.
Emergency services	Any feature of emergency management or response, such as police, fire, or ambulance services, including mutual aid agreements.
Health	All areas of locally delivered health care, including public health and health promotion.
Land	All areas of land ownership, rental or sale, including any land management cooperation or shared usage agreements.
Libraries	Any library services, including borrowing or library activities and facility use.
Municipal services	General administrative or staffing services.
Recreation	All recreation services, supports or infrastructure, including parks.
Social services	All social services, including social work, service delivery, supports or housing services.
Transportation	Road maintenance or construction, including transportation services and public transportation delivery or infrastructure.
Waste	Garbage removal, disposal or treatment.
Water	Water or waste water delivery or treatment.

the latent concept of agreement accountability. Within Panel A, the solid lines indicate the posterior median, while the shaded regions indicate the 95% credible intervals. The ICCs visualize the relationship between each indicator and the latent concept (denoted as θ). For each indicator, we visualize the probability of observing a 1 (fully met) or 0 (unmet) across values of the latent dimension (greater values indicating greater levels of agreement accountability).

We find that each indicator performs well in discriminating between values on the latent dimension[6] and that there is reasonable variation in indicator difficulty across the latent dimension.[7] For example, "Prescribed Budget Standards" and "Public Meeting" are the two most "difficult" indicators, insofar as agreements would require a high degree of accountability to probabilistically observe their full inclusion. By comparison, "Specific Partner Roles" and "Dispute Resolution" are the two "easiest" indicators, such that we expect to observe their full inclusion at lower values of agreement accountability. The difficulty of the remaining indicators varies in between these ends.[8] Importantly, these differences across indicators are obscured when using an additive index, to the detriment of both the measurement of the latent concept *and* our ability to test theories of measurement. In other words, measurement is an ongoing process of theory testing that involves specific assertations about the relationship between concepts and

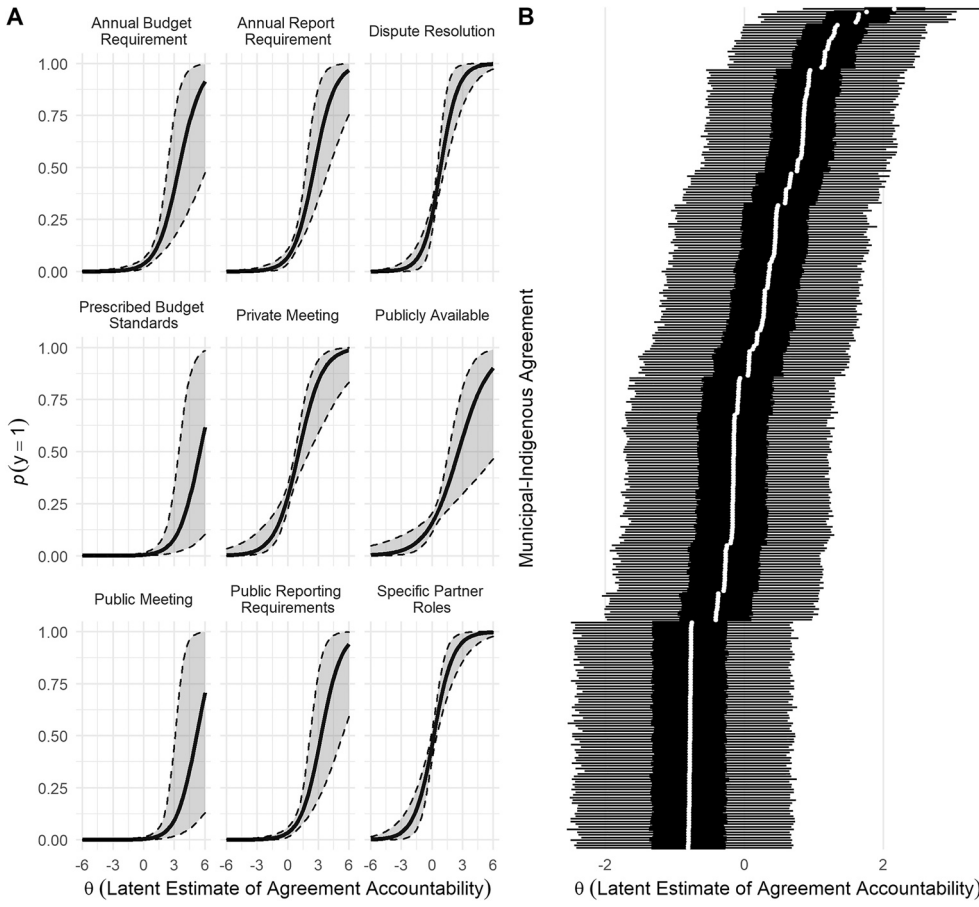

FIGURE 1 Measurement of Agreement Accountability. Panel A, black lines denote posterior median, shaded region denotes 95% credible intervals. Panel B, white point denotes posterior median, black lines denote 50% credible intervals, gray lines denote 95% credible intervals.

their observable manifestations (Jacoby, 1999). The use of an item response theory model instead of an additive index facilitates the study and refinement of the indicators, including their relationships with each other and with the latent concept.

Panel B visualizes the resultant estimates of agreement accountability across all 317 Municipal-Indigenous agreements in our dataset. More specifically, we include the posterior median (white point) and the 50% (black line) and 95% (gray line) credible intervals. To reiterate, greater values of the latent estimate are indicative of greater agreement accountability. Here, we find important variation across agreements. Notwithstanding a cluster of agreements at the lowest end of the latent estimates (these agreements were coded as 0 across every indicator), the posterior medians vary considerably. We also see the importance of accounting for measurement uncertainty. While the standard approach of constructing an additive index would provide estimates of agreement accountability without any measurement uncertainty (comparable to focusing only on the posterior medians), our approach instead allows for the estimation of this uncertainty and its straightforward incorporation in subsequent predictive models.

Turning to the predictive models, the results of each model are summarized in Table 3. To reiterate, Model 1 incorporates the measurement uncertainty into the predictive model while Model 2 uses only the posterior median for each estimate of agreement accountability. Since the predictor in each model is categorical, we interpret the estimates as the difference between the listed policy area and the reference category ("Land"). The full set of contrasts are available in Section 4 of the Supplementary Information file. Rather than report standard errors and *p*-values, we instead present the 95% credible interval and indicate whether the 95% CI contains 0 (comparable to statistical significance in a frequentist framework).

To reiterate, we expect greater agreement accountability in policy areas where actors would be more likely to have to sacrifice autonomy over a significant municipal asset or function or would experience greater hardship in the event of a failure of compliance (such as land-related agreements, or control or sharing of vital utilities). We find mixed evidence in support of our expectations. We find a considerable difference in the uncertainty of our estimates when we choose whether to incorporate measurement uncertainty in the predictive model. While the point estimates (posterior medians) are stable, propagating the measurement uncertainty through the predictive model results in substantially more uncertainty in the predictive model estimates. Importantly, the results obtained in model 2 (excluding measurement uncertainty) are comparable to what would be observed within a frequentist framework.[9]

Focusing on the substantive results in model 2, we find general support for our expectations. More specifically, the results in model 2 suggest that five policy areas are associated with less agreement accountability than land agreements when strictly relying on the 95% credible intervals: emergency services, libraries, transportation, waste, and water.[10] In some cases, these findings are shaped by the sample size across policy areas, as estimating differences with these policy areas results in considerable uncertainty (e.g., conservation). In others, the use of accountability mechanisms may indicate either the importance of the policy area to the corresponding governments or the inherent risk involved if the agreement were to fail or trespassed. For instance, several emergency services agreements in the collection involve mutual aid agreements, which are only in effect in the case of an emergency, such as a fire, which would trigger a response from the emergency services departments of both signatory governments. In the absence of such events, the agreement is not exercised. Pressing for more fulsome accountability measures would increase the transaction cost of negating the agreement and perhaps putting the completion in jeopardy (Kwon & Feiock, 2010). The importance of policy area to agreement structure is illustrated well by the land agreements in the dataset, where estimates suggest that these agree-

TABLE 3 Predictive model results.

	(1) Predictive model with measurement uncertainty		(2) Predictive model without measurement uncertainty	
Parameter	**Estimate**	**95% credible interval**	**Estimate**	**95% credible interval**
Policy Area (Conservation)	−0.81	[−4.02, 2.37]	−0.77	[−2.01, 0.53]
Policy Area (Cooperation)	−0.30	[−1.00, 0.41]	−0.26[b]	[−0.55, 0.02]
Policy Area (Emergency Services)	−0.55	[−1.27, 0.12]	−0.54[a]	[−0.81, −0.27]
Policy Area (Health)	−1.14	[−4.56, 1.95]	−1.16[b]	[−2.45, 0.12]
Policy Area (Libraries)	−1.12	[−3.20, 0.93]	−1.16[a]	[−1.91, −0.39]
Policy Area (Municipal Services)	−0.20	[−1.13, 0.69]	−0.18	[−0.53, 0.17]
Policy Area (Recreation)	−0.42	[−1.83, 0.90]	−0.41	[−0.95, 0.11]
Policy Area (Social Services)	−0.35	[−2.71, 1.95]	−0.33	[−1.28, 0.59]
Policy Area (Transportation)	−0.72	[−2.04, 0.69]	−0.69[a]	[−1.21, −0.17]
Policy Area (Waste)	−0.61	[−1.68, 0.38]	−0.58[a]	[−0.98, −0.19]
Policy Area (Water)	−0.36	[−1.08, 0.35]	−0.33[a]	[−0.61, −0.05]
Intercept	0.37	[−0.19, 0.99]	0.39	[0.15, 0.62]
N. Observations	317		317	
Bayes R^2	0.07	[0.03, 0.14]	0.11	[0.06, 0.17]

Note: Coefficient estimates are median posterior values. The reference category for policy area is "Land".

[a]95% credible intervals exclude zero.

[b]90% credible intervals exclude zero.

ments are associated with greater accountability in comparison to all other policy areas, albeit with varying degrees of certainty. As hypothesized above, this finding may be attributed to the centrality of land to Indigenous communities, and the high degree of commercialization of land in settler communities. Land agreements can be challenging to strike, given the broader implications to treaty relationships if land is sold or usage is regulated (Alcantara, 2013). As a result, it would make sense for these types of relationship to be more tightly controlled through the inclusion of more restrictive accountability mechanisms.

5 | CONCLUSION

Interest in the study of interlocal cooperation has grown steadily over the past decade. Thankfully, both scholars and practitioners know significantly more about how productive relationships are formed and sustained than ever before. A fundamental component of the cooperative process hinges on the agreements themselves, namely how the agreements are structured to mitigate transaction costs and protect signatories (Kim & Brown, 2012; Malatesta & Smith, 2012). Few studies, however, have systematically evaluated the accountability provisions of these agreements and even fewer have examined the relationship between municipalities and Indigenous communities. This article adds substantially to both literatures by introducing a framework for theorizing about the *content* of agreements between Indigenous communities and municipalities

and for examining the relationship between the features of these agreements and their accountability mechanisms.

Substantively, our results suggest that Indigenous communities and municipalities in Canada vary substantially in terms of the extent to which they trust each other. Rather than observing homogeneity in terms of accountability provisions across agreements (e.g., uniformly high levels of accountability), as one might expect given the highly colonial relationship between Indigenous peoples and the Canadian State (Asch, 2014; Coulthard, 2014), we instead observe significant variation across the 317 agreements (Figure 1, Panel B). These findings suggest that the relationship between Indigenous communities and municipalities is more complex than is generally assumed by scholars, who suggest mistrust due to colonialism is at the heart of the relationship between Indigenous communities and the settler State. Instead, levels of trust are much more varied and likely context dependent, given the range of accountability strength found across agreements. In terms of the extent to which this variation is structured by policy area, our results are mixed. As we might expect, land agreements seem to have stronger accountability mechanisms relative to agreements addressing other policy areas, such as emergency services, libraries, transportation, waste, and water (see Table 3, Model 2). Yet these results disappear when we account for measurement uncertainty (Model 1) in the predictive model, which suggests that researcher assumptions about measurement certainty and uncertainty can have a powerful effect on whether an explanatory model uncovers a relationship between two variables. Using a Bayesian approach should allow researchers to build more principled models for explaining variation in interlocal agreements across a variety of contexts.

Future studies might build on our work by examining how these kinds of agreements work in practice through the use of analytical narratives, interviewing policymakers involved the negotiation and implementation of the agreements, and engaging in content analysis of the texts themselves (Deaton & Lipka, 2023; Huo et al., 2022). Other research might focus on instances where no interlocal agreements exist to determine the factors that prevent such partnerships from emerging. Indigenous communities are quickly becoming powerful actors across settler societies and more research is needed to fully understand the nature, dynamics and effects of their participation in the provision of public and private goods.

CONFLICT OF INTEREST STATEMENT

The authors have no conflicts of interest with respect to this paper.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in The Harvard Dataverse at: https://doi.org/10.7910/DVN/NHZVCQ.

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ENDNOTES

[1] Local officials were contacted and asked if their municipality had any agreements with Indigenous band governments. A contact list of 2262 municipalities was created. We received a response rate of 80% among those contacted. Even with the number of governments contacted, it is not possible to describe the database as exhaustive, as some governments refused to provide copies of their agreements. It is also very likely that some of the governments that did not respond had agreements in place but did not provide them to us. Neighboring Indigenous governments were also contacted and asked to confirm the existence of an agreement.

[2] Additive indices (also known as composite indices or Summated Rating Models) are constructed by taking the arithmetic mean or sum of a set of indicators.

[3] For overviews of these issues, see Carroll et al. (2006, Chapter 3) and McElreath (2020, Chapter 15).

[4] Several policy areas contain relatively few observations: Conservation ($N = 1$), Health ($N = 1$), Libraries ($N = 3$), Recreation ($N = 7$), Social Services ($N = 2$), Transportation ($N = 8$). Consequently, the precision of the estimates for these policy areas is considerably reduced.

[5] Replication materials are available at https://doi.org/10.7910/DVN/NHZVCQ.

[6] Stated differently, the steepness of each ICC tells us how well each indicator discriminates between the probability of a 1 or a 0 across different values of the latent dimension. Better performing indicators have steeper, rather than horizontal, ICCs. The discrimination parameter in the item-response theory model is also analogous to the factor loading in factor analysis (Jackman, 2008).

[7] The difficulty estimate of an indicator describes the point along the latent dimension at which the estimated probability of observing a 1 is 0.5 (given our use of the 2-parameter IRT model). "Harder" indicators are those for which the probability of observing a 1 occurs at greater values of the latent dimension (and vice versa).

[8] This difference between indicators makes intuitive sense. While we should expect that many agreements will stipulate the roles of different actors (e.g., service provider and service contractor), it is likely that specific budgetary reporting requirements would only be likely for a subset of agreements (e.g., those that charge per use fees vs. flat rates. In the former case, detailed accounting would be needed to settle accounts whereas in the latter the fee would be due regardless).

[9] In other words, using the measurement estimates derived from a frequentist item response theory model to then be used in a frequentist predictive model.

[10] The 90% credible intervals for the cooperation and health estimates also exclude 0.

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