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When Do Nations Tax? The Adoption of Property Tax Codes by First Nations in Canada

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WHEN DO NATIONS TAX? THE ADOPTION OF PROPERTY TAX CODES BY FIRST NATIONS IN CANADA *

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Abstract

Recent changes in Canadian legislation have enabled First Nations to adopt property taxation and other forms of taxation on reserves, thereby allowing them to directly finance their local governments through local tax revenues. In this paper, we compile data on the passage of First Nations tax laws over a thirty-year period from a centralized national database on First Nations bylaws, the First Nations Gazette. We combine these data with additional sources to analyze the factors that are associated with First Nations exercising their taxation authority. We find evidence of geographic policy diffusion consistent with First Nations learning from their neighbors and direct evidence that formal educational and institutional resources are important correlates of tax law adoption. Understanding this process informs the broader literature on the evolution of taxation structures and local political incentives and may contain important lessons for Indigenous tax jurisdiction in other contexts. It is also a critical first step toward assessing the long-term consequences of First Nations' new fiscal powers.

Keywords: State evolution, First Nations, Indigenous, Taxation, Property, Public Finance
JEL classification: H11, H12, H71, P48

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I. INTRODUCTION

First Nations in Canada occupy a unique place in the confederation. One of three constitutionally recognized Indigenous groups in the country, First Nations' governments have jurisdiction on reserve lands, but are considerably constrained by the Federal Government. The Canadian fiscal federation has evolved continuously since the first colonists arrived, and the resulting institutional outcomes have radically altered the ability of First Nations to control and develop their economies. Until very recent decades, Indigenous nations in North America have been almost entirely excluded from these fiscal bargains. More than a century of wardship has eroded many traditional forms of First Nations governance, and left little room for nations to build new institutions to strengthen communities and foster economic development. In particular, First Nations' governments have historically had limited independent fiscal powers, often restricted to short term planning and bureaucratic oversight. However, in recent decades a number of changes to Canada's fiscal arrangements have begun to alter this, albeit unevenly.

The recent fiscal reforms are complex, extensive and varied across First Nations, providing access to sales, income, and property taxes. This paper focuses specifically on property taxation.¹ As for most developed countries, property tax plays a relatively minor role in the overall fiscal capacity of Canadian governments. However, it is substantial for local governments, and it is these local issues—land use management, water, waste disposal, and local service infrastructure—that lie at the heart of many of the challenges facing Indigenous communities. Historically, the provision of local public goods on First Nations reserves has been overseen by agents of the Federal Government. The recent legislative changes have reduced the barriers to individual nations assuming responsibility for more of these services. These changes also allowed nations to occupy the tax space required to exert this control.

In this paper, we empirically examine which First Nations have exercised their new property taxation powers under Canadian law. Understanding this process informs the broader literature on the evolution of taxation structures and local political incentives and is a critical first step towards assessing the long term consequences of First Nations' new fiscal powers. Our discussion

¹We do not discuss income taxation since roughly 15 out of more than 600 First Nations in Canada have implemented income taxes as part of large-scale, multi-dimensional self-governance agreements. We also do not discuss goods and service taxes given the small number of nations that have recently chosen to implement them (Feir and Scoones, 2022).

of First Nations property tax also informs conversations around Tribal Nation property taxation powers in the United States. To explore the question of which nations choose to implement property taxes, we leverage data on tax laws compiled from the First Nations Gazette, which we merge with other sources of geographic, cultural, and economic data that stem from a wide range of additional sources. As predicted by economic theory, our results suggest that the adoption of property tax codes is related to economic factors that increase the surplus associated with taxation; specifically, the existence of a tax base and distance to the closest major city.²

We also identify a pattern of adoption that is consistent with geographic diffusion or *learning* across nations, a topic that intersects both political science and economics. For instance, Shipan and Volden (2008) highlight this type of mechanism for policy diffusion, alongside competition, imitation, and coercion, and Buera et al. (2011) empirically show that the adoption of market-oriented policies across time and space is directly related to the ability of nations to observe and learn from the experiences of nearby countries.³ Similarly, we show that First Nations are considerably more likely to adopt property taxation laws after neighboring nations have adopted similar policies. This empirical finding holds even after we condition on top-down factors that make the adoption of tax laws easier. We also separately identify a unique channel through which policy makers learn. Specifically, we show that First Nations that are geographically closer to the administrative body that governs First Nations' taxation and the related educational institution that supports administrative capacity are more likely to implement a tax code.

The economics literature contains a number of threads that speak to the choices faced by First Nations contemplating taking up these new powers. Economic historians and development economists have increasingly focused on the institutional underpinnings of economic growth. The power to tax is fundamental to the exercise of sovereignty. Territorial control requires resources, and public revenue is essential for protecting rights, enforcing contracts, and fostering economic growth (Acemoglu, 2005; Besley and Persson, 2009, 2013). The ability to raise taxes and the form that taxation takes are the outcomes of a bargain between governments and the governed (Levi, 1989). The extent to which First Nations are able to make these bargains with their citizens may affect the responsiveness of First Nations governments to their community

²Distance to the closest city is likely associated with the average cost of service provision.

³The literature on policy diffusion is substantive and we do not attempt a comprehensive review here. See Shipan and Volden (2012) as a starting point.

members' needs (Hickey, 2021).⁴ Dincecco (2015) argues that the historical growth performance of European countries is driven in part by the capacity for self-governance, specifically the sovereign's ability to implement a uniform tax system along with the existence of institutional checks on the sovereign's power. In this state capacity literature, tax revenues are sometimes taken as a proxy for effective government.⁵

While there are many reasons to believe that good governance can foster growth, the public choice literature stresses that capacity can also be used to stifle the rights and opportunities of certain citizens, should the interests of the sovereigns require this. Furthermore, the direction of causation in the empirical relationship between effective government and growth is not always obvious. In the rise of European nations, investments in national defense with its broad connections to other public goods was the impetus for the growth of taxation and state capacity. Geloso and Salter (2020) make the interesting argument that rather than causation, the relationship between effective government and growth is due to survival: capacity acts as a "filter", and without sufficiently well-organized resources for defense, prosperous nations will fall prey to more well-armed competitors. On the surface, First Nations in Canada seem unlikely to face military threats not equally shared by other citizens. However, we expect that the filter can also operate through other channels. First Nations without sufficient capacity to defend their territory from regulation and encroachment by surrounding jurisdictions may be progressively weakened, in which case the benefit of their resources would flow to non-Nation members. Understanding which Nations choose to adopt these powers will provide insight into which nations may have greater state capacity to defend their interests in the future and could be important for understanding whether or not they leverage this capacity to protect their sovereignty.

The position of First Nations within the Canadian federation differs from the nations examined in much of the state capacity literature. Many of the challenges faced by First Nations are similar to those faced by municipalities. Democracy is often suggested as a means to limit government predation, and models of "fiscal constitutionalism" take the constraints imposed by voting and the mobility of voters for granted (see, for example, Brennan and Eusepi (2005)).

⁴That First Nations governments have been omitted from the larger fiscal bargains made in the settler colonial countries in which they are located is arguably evidence of their economic exclusion.

⁵See Piano (2019) for a recent survey of the state capacity literature through the lens of public choice theory. The ability of effective governments to raise taxes is also found to be essential by Johnson and Koyama (2017), which presents historical case studies illustrating additional factors that translate this power into economic growth, such as the parallel requirement of legal capacity, and the value of social cohesion.

The fiscal federalism literature has moved beyond the perfect mobility and efficient sorting model of Tiebout (1956), recognising the limitation of mobility within jurisdictions in a federation. Tiebout’s assumptions are presumed to hold more closely in the case of local public goods, because mobility between communities within a jurisdiction is less costly (Boadway and Tremblay, 2012).⁶ Mobility between communities is likely to be more costly for members of a First Nation, and so the Tiebout assumptions are less likely to hold for them because First Nations that choose to implement a property tax generally exempt the members of the nation themselves. However they also apply the taxes to non-member leaseholders who may be more mobile. Thus even while non-members are not voters, they may still influence the equilibrium path of public good provision through this channel. On the other hand, if mobility is costly for non-members, the lack of the ability to vote creates a challenge for the First Nation to credibly commit to a path of taxation and expenditure sufficient to attract fixed investments in the absence of other external commitment devices.⁷ To the extent that the tax base is “foreign,” the situation is akin to one of international taxation.

It is clear that as a broader set of First Nations gain control over the powers to tax and supply amenities, the competitive landscape of taxation in Canada will change vertically, with new players in the federal system, and grow horizontally. There is of course a large literature on tax competition and its associated effect on the provision of efficient levels of public goods. The earliest papers emphasized a race to the bottom where competition among jurisdictions for mobile factors undermined the ability to provide services (see Wilson (1986) and Zodrow and Mieszkowski (1986)). More recently, papers have considered off-setting considerations that can lead to excessive levels of taxation (Keen and Konrad, 2013; Wilson and Wildasin, 2004). Our context is not the setting of tax rates, but rather the introduction of the administrative capacity to set rates. This, too, can have implications for the subsequent tax competition. The extension of administrative capacity and enforcement is explored in the literature on “tax havens” (Slemrod, 2019), and in other work that explicitly considers the “entry decision” and its effects (Matsumoto, 2010). With the nations taking up new powers, almost certainly there will be yardstick competition, where members of the nations can observe actions and relative outcomes

⁶See Boettke et al. (2011) which describes a number of quasi-market failures that are potentially aggravated in local government competition.

⁷Of course, even lacking a vote, leaseholders on reserve land can, in many cases, exert control through the Federal government, a channel that historically has been active and effective.

to assess the use of the new fiscal tools. Any strategic response will depend on many factors, including proximity, existing strategic relationships between nations, the complementarity and substitutability of goods in production and consumption, and the degree of institutional coordination under the new laws, among other things. On the issue of entry, Matsumoto (2010) shows that it is possible that if jurisdictions ignore the dilution of a fixed capital stock, there is excess entry, with too many nations taking up the new powers.

We do not pursue questions of tax competition partly because we do not have data on either of the focal points of that literature, namely tax rates and public good provision. But more importantly, the administrative structures that are part of the fiscal reforms have mechanisms that potentially limit horizontal tax competition. On the other hand, some of the new players created by the reforms are engaged in strategic interactions within the federal system, and expanding adoption might be part of this. It is unclear how the spatial relationships we find would arise from this source. However, it is possible that some of the relationships we attribute to learning are instead the effect of strategic interactions of another sort. We return to this question when we discuss our findings.

Our work is informative beyond Canada's borders. For instance, in recent decades, more Tribal Nations in the United States have sought to exercise tax jurisdiction. In the United States, tribal governments are recognised as sovereign in their territories and in their relationships with other levels of government that fall under the Indian Commerce Clause of the Constitution.⁸ Overlapping jurisdictions between Tribal and State governments result in uncertainty and inefficiency, and a complex patchwork of compacts and agreements has emerged to share fiscal responsibilities (Cowan, 2021). What Tribal Nations have begun to exercise tax jurisdiction and how is an open question, but unlike in Canada, there is no centralized, legally mandated publication of Tribal Nations' laws. In Canada, however, prior to the 1990s, all First Nations were legally required to publish their laws in the Canada Gazette, and since the 1990s, the First Nations Gazette.⁹ Thus leveraging this unique set of information in Canada may also inform Tribal Nations and American policymakers of the potential barriers to and factors that support tribal taxation.

⁸United States Constitution, art.1 sec.8 cl.3

⁹The rule of law requires both constraints on arbitrary power and a clear, well-understood tax system. See for example, Stratman (2022) for a "reservation economic freedom index" that positively scores clear tax rules. The requirement for publication does just this.

Our discussion of the mechanisms through which First Nations adopt taxation laws and the institutions designed to support First Nations in credibly committing to a tax regime may also be informative for policy in the United States. For example, Anderson and Parker (2008) attribute differences in outcomes on reservations in the United States to the recourse to state courts. They argue that this recourse credibly commits governments to the institutions required to encourage investment. However, many see the forced mechanism that resulted in state jurisdiction as a coercive infringement on tribal sovereignty (Goldberg and Champagne, 2005). Not only are the First Nations tax institutions in Canada opt-in and First Nations led, they have been designed, in part, to provide a credible commitment to not change rules in a way that may harm non-voting taxpayers. In addition, these institutions offer a clear alternative to the complex state rules governing the taxation of non-Indians on reservations and the issue of “double taxation” that plague a number of Tribal Nations in the United States (Croman and Taylor, 2016).

We begin by describing the institutional context in Canada and the evolution of First Nations recognized fiscal powers in Section II. In Section III we outline the empirical framework we use to model a First Nation’s choice to exercise their tax jurisdiction. In Section IV we describe the data we use to shed light on the empirical determinants of tax adoption. We discuss our empirical framework and provide baseline descriptive statistics in Section III. In Section V we present evidence on the key determinants of a First Nation exercising their tax jurisdiction. We conclude in Section VI, where we discuss the implications of our findings and possible avenues for future work in this area.

II. BACKGROUND

The Canadian Constitution assigns exclusive legislative authority related to matters of “Indians, and Lands reserved for Indians” to the Federal Government (*Constitution Act, 1867* s.91(24)).¹⁰ The passage of the *Indian Act* in 1876 amalgamated all existing Canadian law regarding Indigenous people and nations (*Indian Act, 1876*, s.98) and until recently has governed all matters related to Indigenous lands (specifically reserves).¹¹ In particular, the *Indian Act* determines the legal and fiscal infrastructure of First Nations “bands,” the sole political authorities created

¹⁰Some of the discussion in this section is adapted from Feir and Scoones (2022).

¹¹An exception is the *Indian Advancement Act* of 1984 which provided broader powers to First Nations considered “fit” (Section 3). We discuss this in more detail later, in addition to its implications for our analysis.

and recognised by the Act. For most of its existence, the *Indian Act* left First Nations with no fiscal instruments at their disposal. Any financial assets of the band, including their lands, were held in trust by the Federal government for their “beneficial use.” Monies transferred by the Federal government to band councils were heavily monitored and the band had limited authority to re-allocate monies when needs arose. Indigenous nations were also actively prevented from administering tax systems to raise their own revenue (Tulo, 2014, p. 154-155). As North points out “[i]nstitutions are not necessarily or even usually created to be socially efficient; rather they, or at least the formal rules, are created to serve the interests of those with the bargaining power to devise new rules” (North, 1990, p.16). First Nations’ lack of political power led to institutions that were designed in ways that hampered their economic opportunities, but as First Nations’ bargaining power has grown over time—largely as a result of Supreme Court decisions—new rules have emerged. There is evidence that new self-governance agreements and federal recognition of their land rights has resulted in increased economic opportunities (Aragón, 2015; Pendakur and Pendakur, 2018, 2021). Here, we specifically discuss recent legal changes in Canada related to First Nations taxation powers, which we also summarize in Figure 1.

The first significant amendment to the *Indian Act* that relates to taxation came in 1951 as part of a substantial overhaul following the 1946-48 Joint Committee of the Senate and House of Commons review of Indian Affairs. The 1951 amendment allowed band councils to obtain powers like those of municipalities—specifically the power to tax—for the first time. Section 82(1) of Bill 79 states, “where the Governor in Council declares that a band has reached an advanced stage of development, the council of the band may, subject to the approval of the Minister of Indian Affairs, make bylaws for... (a) the raising of money by (i) the assessment and taxation of interests in land in the reserve of persons lawfully in possession thereof, and (ii) the licensing of businesses, callings, trades and occupations.” (An Act Respecting Indians, 21st Parl., 4th sess., 1951)

During the broader political change and activism in the 1960s, First Nations acquired the right to vote federally in 1960 without losing their “Indian Status” under the *Act*.¹² Moreover, most provinces in Canada, which had previously taxed non-First Nations citizens living on-reserve, vacated the tax space. Québec and British Columbia continued to tax non-First Nations

¹²The right to vote in provincial elections came incrementally, starting with British Columbia in 1949 and extending to all provinces by 1969 when Québec extended the franchise.

citizens on reserve and do so today, unless the First Nation implements its own tax code (First Nations Tax Commission, 2014).

However, there was an ambiguity in this power. What about non-citizens residing on conditionally surrendered or designated (i.e. leased) lands located on-reserve? This was clarified in 1988 with an amendment to Section 83 of the *Indian Act* known as the Kamloops amendment.¹³ Under this amendment, to implement a property tax affecting non-citizen leaseholders or businesses, the nation must pass both an expenditure bylaw on how the tax reviews will be used and a law that outlines the appeal procedure for assessments. With the original 1988 amendment, the bylaws would be subject to Federal approval at the advice of the Indian Taxation Advisory Board (ITAB) (Graham and Bruhn, 2010).

While this amendment allowed for the first politically feasible opportunity for First Nations to implement property tax, it was still limited relative to the taxation powers of other governments.¹⁴ Specifically, it did not allow First Nations to use tax revenue to secure low-cost debt financing. Driven by the same political leadership as the 1988 amendment, in 2005 the federal government passed the *First Nations Fiscal Management Act* (FMA) which enables First Nations to implement all the taxation powers available under the *Indian Act*, and also to use these revenue streams as collateral to borrow for infrastructure and economic development projects. The Act also created three independent, First Nations-led institutions to support the use of these new powers and regulate the use of them. The first of these institutions was the successor to the ITAB, the First Nations Tax Commission (FNTC). It assists nations with developing their tax codes and regulates their implementation, either under Section 83 of the *Indian Act* or under the FMA.¹⁵ Other service and infrastructure agreements between First Nations local governments are facilitated by the FNTC (Tulo, 2014, p. 203). It further provides assistance to small communities that may lack resources to act individually, and it helps protect the overall financial reputation of First Nations (Jules, 2000). Specifically its role is “ensuring that the First Nation property tax system is administratively efficient, harmonized with the rest of the country, and is reconciled with the interests of on-reserve taxpayers.” (First Nations Tax Com-

¹³This occurred largely as a result of the efforts of Chief Clarence T. “Manny” Jules of the Kamloops Indian Band (Tkémlúps te Secwépemc Nation) (First Nations Tax Commission, 2014; Graham and Bruhn, 2010).

¹⁴To our knowledge, no First Nation, other than self-governing First Nations, have implemented a formal tax on their own members. There are, however, other traditional mechanisms of redistribution that, in some cases, serve the same role as public taxation. See, for example, Kelly and Kelly (2015) and Johnsen (2019).

¹⁵<https://fntc.ca/functions-services/> Last Accessed December 14, 2021.

mission, 2014, p. 15). The Tax Commission generally will approve tax laws that are equivalent to the nearest municipality and will only approve a tax law if the nation can demonstrate it will provide comparable services.¹⁶

The FMA also set up the Financial Management Board and the First Nations Finance Authority. The Financial Management Board provides training and support for First Nations administering their finances in a way that they are eligible to borrow through the First Nations Finance Authority. On top of financial planning advice, the Finance Authority provides access to capital markets to leverage long-term, affordable tax-exempt debt financing by pledging revenue sources from taxation and other stable revenue streams.

Arguably, the structure of these institutions allows for First Nations tax empowerment in a way that is both more cost effective and efficient than if each nation were to develop and implement its own tax codes. As pointed out by Anderson and Parker (2017) and Anderson and Parker (2022), in the context of Indigenous nations, some government functions may be more effective at solving local problems, but capacity issues and credible commitment constraints imply that some functions of the state may be more effectively carried out at more centralized levels of government. The First Nations institutions, first the ITAB, then the FMA institutions, allow for local responsiveness since the legislation is opt-in and the uses of the revenues are decided on locally. As suggested by Frye and Parker (2021), the ability to pursue local strategies without federal interference may result in better economic outcomes because of additional information available at the local level. However, despite this local administration, independence, and flexibility, these institutions also offer some of the benefits of centralization. Specifically, the FMA's institutions reduce the cost of any given nation taking up tax jurisdiction by providing centralized educational support and providing assurance to local, tax paying, non-voters that their interests will be protected by an independent party. This assurance collectively supports First Nations' interests by preventing tax actions by one nation that would harm the reputation of other First Nations governments and their ability to attract a tax base.

One of the key advantages of the 2005 changes is that they lowered transaction costs associated with developing a tax code, as well as the relative benefit to developing a tax code, since

¹⁶The limits the FMA places on the freedom of First Nations to exercise tax jurisdiction and freely set tax rates has been critiqued as not fully respecting First Nations' rights to self-government. See Boissonneault (2021). This is clearly at odds with the design of the FMA to protect the interests of non-voting members who may be subject to taxation.

tax revenues could be used for debt financing (Le Dressay, 2021). Thus we would expect greater take-up of taxation powers with the FMA than just with the *Indian Act* 1988 amendment.

As of 2021, 309 First Nations opted in to the FMA, representing nearly half of all 634 First Nations across Canada (First Nations Tax Commission, 2021, p. 14). However, fewer nations have actually implemented a tax code choosing rather to leverage other income flows, such as royalties from Natural Resource Exploration or First Nations Corporation revenues in order to borrow through the First Nations Finance Authority. Figure 2 shows the number of First Nations that have passed a tax law under the FMA or Section 83 of the *Indian Act* and published it in the First Nations Gazette. We can see that, by 2019, well over 100 nations had established a tax law under the FMA with many nations moving away from tax laws under the *Indian Act*, and 149 nations passing a tax law in total.

Figure 3 shows the geographic spread of tax laws passed under the FMA or Section 83 of the *Indian Act*. Blue circles indicate the location of First Nations communities and red stars indicate communities whose nations have adopted tax laws at each point in time. Many of the first tax laws were passed in British Columbia and Alberta and appear to have spread eastward over time. The pattern of tax adoption in Figure 3 suggests that there may be some spatial elements—either geographic, or through information transmission—that relate to tax adoption. We return to this policy diffusion in the sections that follow.

Before we describe the characteristics of the nations that have adopted a tax law, the following section shifts towards a theoretical discussion of when we would expect a nation to adopt tax jurisdiction based on the literature on public finance, as well as the institutional environment.

III. EMPIRICAL STRATEGY

We assume that a First Nation faces both costs and benefits from economic development on reserve land.¹⁷ The direct benefits may include access to employment, housing and other services that flow from the activity. To attract this investment, First Nations must offer a “competitive” fiscal package that includes infrastructure and services, net of taxes and lease fees. The value

¹⁷Costs borne from development will be beyond that of the fiscal administration we emphasise here. These costs will also vary widely across nations.

of these amenities will, in general, “spill over” and provide benefits to community members whether or not they contribute to the tax base. The costs will include the initial set-up and ongoing maintenance of the necessary fiscal structure, such as developing tax laws and enforcing collection. When considering implementing a tax code, a First Nation will weigh the the costs and benefits of doing so. We denote this net benefit from implementing and maintaining a fiscal structure the “surplus.”

Time is divided into periods indexed by t , which in our data represents years. Nations are indexed by n , are infinitely lived and discount the future at a constant rate ρ . In every period, nations which have not previously done so can choose to implement a tax code.¹⁸ Let π_n^t denote the total surplus to a First Nation n as of time t , contemplating the implementation of a tax code. Assume that the nations would face a one time set up cost to implement their tax system C_n^t . This is indexed by t to account for, among other things, changes to Federal laws empowering taxation. Once the nation implements its tax system it receives a per period revenue flow starting in the following period, denoted by r_n^t . If the nation implements a tax system, the regulations and supervision of the First Nations Tax Commission require that it offers corresponding services to its non-voting tax base denoted by s_n^t .¹⁹ Also assume the nation makes a mean-zero, i.i.d, normally-distributed forecasting error when predicting the present value of surplus denoted by ε_{nt} . Thus the net present value of benefits to the nation from implementing taxation from the start of time period t can be written as:

$$\pi_n^t = -C_n^t + \sum_{h=1}^{\infty} \rho^{t+h} [r_n^{t+h} - s_n^{t+h}] + \varepsilon_n^t \quad (1)$$

If it has not done so previously, a First Nation will implement a tax code if $\pi_n^t > 0$.²⁰ The legislative changes that we explore will potentially affect each of the three variables: C_n^t , r_n^t and s_n^t . The changes to the legislative framework that allows First Nations to tax have explicitly lowered the cost of implementation, from essentially infinity before the Kamloops Amendment, and further still with the additional institutional supports and complementary ability to finance

¹⁸The taxation bylaws are persistent, but need to be implemented by annual expenditure bylaws. In principle, it is possible to remove tax authority.

¹⁹Prior to 2008 it required approval from the Indian Tax Advisory Board, the precursor to the First Nations Tax Commission.

²⁰While we model this as an irreversible decision, nations are in fact able to revisit their adoption in future periods.

debt using tax revenue under the FMA. The power to borrow based on the tax flow has reduced the cost of funds, further lowering s_n^t for a given level of service provision.

For simplicity, assume

$$E \sum_{h=1}^{\infty} \rho^{t+h} [r_n^{t+h} - s_n^{t+h}] = \zeta_n^t (r_n^t, s_n^t),$$

where t is the current time period. So the expected future surplus is a deterministic function of the tax revenue stream and services the nation would have to provide today.

Ideally we would observe a nation's potential gains from taxation, but in practice we only observe whether or not nation n has implemented taxation in period t , T_n^t . In other words we observe:

$$\begin{aligned} T_n^t &= 1 \quad \text{if } \pi_n^t > 0 \\ T_n^t &= 0 \quad \text{if } \pi_n^t \leq 0 \end{aligned}$$

Hence, the probability we observe a nation implementing a tax system at time t is given by $Prob [\pi_n^t > 0]$. Or in other words:

$$Prob [\zeta_n^t + \varepsilon_n^t > C_n^t \mid \zeta_n^t, C_n^t], \quad (2)$$

We hypothesize that the potential tax revenue that a nation raises will depend on the value of properties of non-citizens on-reserve, the number of non-citizens, as well as the profitability and number of businesses operating on-reserve. The cost of services would likely depend on the number of non-citizen residents and businesses.²¹ It would also depend on the pre-taxation amount of infrastructure available on and surrounding the reservation. Correspondingly, the total surplus would depend on the proportion of citizens to non-citizens living on-reserve given the amount of per capita transfers that would be required to generate a surplus for members, as well as the availability of tax revenue to secure debt financing.

The initial set-up costs to implementing a tax system would depend on the starting governance infrastructure of the First Nation (bureaucratic experience and capacity), and the cost of learning the procedures for implementing a tax system either under the *Indian Act* or FMA.

We estimate both static and dynamic models. First, in the static model we proxy for $C_n^t - \zeta_n^t$

²¹Only non-citizens will increase the cost of service delivery, since citizens who live on reserve have their social services funded via federal grants and contribution agreements.

with a vector of observable factors from the pre-1988 period, which we denote X_n . These factors relate to the relative costs of adoption and the surplus of taxation. We use these predictors to determine the important forces that drive nations’ decisions on whether to adopt a tax law by 2021. Thus we can recast equation 2 as:

$$Prob[\varepsilon_n > X_n\beta \mid X_n], \quad (3)$$

Our data sources are described in more detail below, but given the logic above we condition on the total number of people living on-reserve, the proportion of those people who are non-Indigenous, the average value of dwellings, indicators of local capacity, including education, income, and housing quality, indicators of potential benefits from taxation, including the interactions of these factors with the proportion of population that is non-Indigenous. In an ideal world, we would be able to account for income, business density, and housing value by race, but those data are not publicly available. Thus we use the interactions instead.

We use distance from the closest major city to proxy for the cost of service delivery. We include an indicator variable for whether a nation is located in Québec or British Columbia. We include these indicators because, as mentioned, unlike the other provinces, neither Québec nor British Columbia vacated the tax space on non-First Nations citizens on-reserve during the 1960s and 1970s. These provinces continue to tax non-First Nations citizens on reserves until the First Nation implements its own taxation powers. We expect that this will have led to greater service provision and infrastructure improvements on reserves in Québec and British Columbia in the decades before 1988. Moreover, since these provinces will have included some of the development on First Nations reserves in their overall planning, we expect that infrastructure surrounding these reserves may also be better configured for further on-reserve investment.

To account for variation in the one-time set-up costs of a tax system, we control for the cost of implementing a tax system by a nation’s distance to Kamloops, where the Tax Commission is housed, and First Nations administrators can receive training in tax administration. This variable may also serve as a proxy for “learning” if communities that are closer to Kamloops have more knowledge of the potential benefits of taxation and the steps required to adopt a tax law. We also control for the number of people living on-reserve and the proportion of people with a Bachelors degree or higher as a proxy for on-reserve government capacity.

In our dynamic models, we recast the data as a panel where we treat each census wave (1981, 1991, 1996, 2001, 2006, 2011, and 2016) as the units of time. The outcome in these specifications is an indicator that equals one if nation n signed a tax law by time t . To more formally test for the presence of policy diffusion, we compute the proportion of other nations in the same economic region that had adopted a tax law by the prior period and use this as an explanatory variable in the specifications.²² These values are constructed as “leave-out averages” so that, when analyzing nation n ’s decision to adopt a tax law, the fraction of nations that signed a tax law in a previous year is computed by excluding nation n . This diffusion could be understood as either learning or imitation (Shipan and Volden, 2008).²³

All specifications are estimated using linear probability models. Because Moran I tests indicate the presence of spatial autocorrelation, we report Conley (1999) standard errors with a 100 kilometer cutoff and a linear decay that we estimate using the method of Colella et al. (2019).²⁴ The dynamic models also include year and reserve fixed effects. Time varying controls include population and scores for income, education, housing, labor, and community well-being, all from the community well-being database. We also interact all static controls with year dummies that include the log of the distance to Kamloops, the log of the reserve ruggedness, the area of the reserve in sq-km, and the population density in the nation’s tribal territory in 1900.²⁵

IV. DATA AND DESCRIPTIVE STATISTICS

We obtain data on whether and when a First Nation has passed a tax law by manually going through each year of Canada’s First Nations Gazette to determine which nations passed a tax law since 1988, and whether the law was passed under the FMA or Section 83 of the *Indian Act*. We also record whether any expenditure law has been passed by the First Nation. All tax and revenue laws regulated by the First Nations Tax Commission must be published in the Gazette

²²Statistics Canada defines an economic region as a group of census divisions that can be used as a unit of analysis for regional economic activity.

²³Coercion is unlikely in this context since provinces or the federal government cannot force First Nations to adopt a tax law. While tax competition might be possible among First Nations in provinces where the provincial government does not occupy the tax space, the dominant observable effects suggest net positive spillovers of adopting a tax law.

²⁴The results are robust to using a rectangular kernel varying the cut-off. Alternatives of 200 and 50 kilometer cut-offs were implemented.

²⁵Communities that are missing time-varying or static controls are dummied out.

by law (First Nations Tax Commission, 2014).²⁶

We merge these laws to Indigenous Services Canada (SIC)’s official band-to-community linkage file which links bands to legal reserve lands.²⁷ We manually match the names of First Nations passing laws to the First Nations names in the band-to-community linkage file.

To obtain data on local economic conditions over time, we use the linkage file to merge our institutional data to SIC’s Community Well-Being Index (CWB) database. The CWB database contains data on population, income, and education constructed from the 1981, 1991, 1996, 2001, 2006, 2011, and 2016 Censuses plus the 2011 National Household Survey at the Census Subdivision (CSD) level of geography, which is equivalent local political units, including reserves and municipalities.

Additional institutional and contextual information comes from various sources. We leverage separate census data at the CSD-level from the University of Toronto’s Canadian Census Analyser in order to construct the number of dwellings in a CSD by Census year, and the proportion of the population that is non-Indigenous living on the reserve.²⁸ In our static analysis, we include the average value of dwellings on reserve in 1981. Unfortunately, we cannot use this for later periods because the census stopped collecting this information on reserves. We use the geographic boundary shapefiles from Statistics Canada to calculate the closest Census Metropolitan Area (CMA) to the reserve centroid, as well as the distance between the reserve and the city of Kamloops. The distance from Kamloops acts as a proxy for the ease of obtaining training in financial accounting and public administration related to land management from the Tulo Center for Indigenous Economics. The distance to Kamloops also bundles access to formal education with more informal access to information and learning given that it is also the physical location of the First Nations Tax Commission Office.²⁹ When we conduct our dynamic analysis, we construct a time-varying indicator variable for whether a First Nation has

²⁶The First Nations Gazette has been published semi-annually since 1997 and is administered by the Native Law Centre of the University of Saskatchewan. First Nations’ laws were published as part of the Canada Gazette prior to this period but the Gazette has also been working on compiling these historical laws into its publications.

²⁷Note that while we have (and will continue to) use the term First Nation throughout, legally in Canada the Federally recognized political units are called Indian bands. We use the term First Nation since this is a preferred term by some nations. See <https://indigenousfoundations.arts.ubc.ca/bands/>. Last Accessed February 21, 2022.

²⁸Note that ideally we would have the proportion of non-citizens of the First Nation rather than using racialized identity as a proxy. However, to our knowledge, these data do not exist publicly.

²⁹See <https://www.tulo.ca/>. Last Accessed February 02, 2022.

an operational land code under the LMA using data from SIC.³⁰ We do this given the possible complementarities discussed in section III.

In the empirical analysis, we exclude Nations that have a self-governance agreement. We do this because their governmental powers are much more expansive than other nations. If the taxation power resulted from a comprehensive land claim, this power is bundled with many other governmental changes and changes in property rights (Aragón, 2015). Currently, 26 nations have signed self-government agreements,³¹ 18 of which are the result of comprehensive land claims, and 15 of which have personal income tax.³² This income tax applies to all individuals within their jurisdiction, regardless of membership in the First Nation. While some of these income tax arrangements have the tax revenue go completely to the First Nation, some involve revenue sharing agreements with the provinces.

Note also that we do not account for the 38 Nations that are currently implementing Goods and Service Taxes on reserve lands under the First Nations Goods and Services Tax Act (FNGST) of 2003.³³ While these other forms of taxation are important, they are conceptually distinct from the main form of taxation considered here thus set aside for the time being.

To get a sense of where these tax laws are being implemented Table 1 presents summary statistics by whether a nation implemented a tax law under section 83 of the *Indian Act* or the FMA by 2021. All variables in this table are either historical, or as of 1981. In the first three columns, we present summary statistics for the full sample for which we have minimal data. In the following three columns, we present the summary statistics for a restricted sample for which we have more complete data. We do this because the Census confidentiality restrictions imply certain variables like income, education, and Indigenous population composition are only available for communities over a certain size. The most limiting factor is income which has a sample size threshold of 250 people. From showing these two samples together, we can better

³⁰Data obtained from <https://www.sac-isc.gc.ca/eng/1327165048269/1611937623786>. Last Accessed October 21, 2021.

³¹<https://www.rcaanc-cirnac.gc.ca/eng/1100100030577/1551196153650> Last Accessed December 11, 2021.

³²<https://www.canada.ca/en/department-finance/programs/tax-policy/aboriginal/tax-administration-agreements/first-nations-personal-income-tax.html> Last Accessed December 13, 2021.

³³They can do this since Federal and Provincial GST/HST does not apply on reserve so they are essentially filling this tax space. <https://www.canada.ca/en/revenue-agency/services/tax/businesses/topics/gst-hst-businesses/charge-collect-indigenous-peoples/first-nations-goods-services-tax.html> Last accessed December 31, 2021.

contextualize the later regression models that use both. That being said, while the magnitude of the estimates tends to vary depending on whether we are examining the full sample or the limited sample, the sign of the estimates is generally the same between the two samples.

Unconditionally, nations that implemented property tax laws are actually slightly smaller in size, with higher average income even though these differences are not broadly statistically significant. They also have equal proportions of people with a BA or more. Nations that implemented property taxation have nearly 10 percentage points more non-Indigenous people living on the reserve even though this difference isn't statistically significant unconditionally. The average value of dwellings is \$9,800 to \$13,400 greater among those nations that eventually implemented property tax. They are nearly 30 kilometers closer to the nearest census metropolitan area and substantially closer to Kamloops, the location of the First Nations Tax Commission and source of training in tax administration. Population densities are roughly equivalent between those that exercise tax jurisdiction and those that do not.

Finally, as we can see in Figure 4, the geographic distribution of nations that tax are much different than those that do not. Specifically they are far more likely to be in British Columbia (a province that did not vacate tax jurisdiction on reserve) than any other province.

Of course, many of the characteristics described in the summary statistics are correlated. For example, income and average dwelling values are likely correlated. Similarly, Kamloops is located in British Columbia. In the next section, we present the regression estimates from the models described in Section III.

V. RESULTS

Table 2 reports the marginal effects from the model in equation 2. The first column includes the set of geographic controls that may impact the surplus and startup costs of exercising tax jurisdiction and the second column just the demographic factors that could affect surplus and startup costs. The third column includes both sets of controls. The distance from the closest city, the average value of a dwelling on reserve, and the distance from Kamloops are all statistically significant predictors of whether a nation exercises tax jurisdiction by 2021 in either in column (1) or (3). If the distance from the closest CMA increases by 10%, the probability of adopting a tax law decreases by approximately 3.7-6.8 percentage points while a 10% increase

in the distance from Kamloops decreases the probability of adopting a tax law by between 11.7-18.2 percentage points.

It is clear from the estimates in columns (1) and (3) that in provinces where the provincial governments vacated the tax space on-reserves, the probability of adopting tax jurisdiction was no different than in provinces that did not vacate the tax space. This is somewhat surprising because if the province exercises tax jurisdiction, the marginal cost to the First Nation of simply replacing the tax is smaller than if it were to implement a tax from scratch. This would also likely have a smaller effect on non-member mobility, which in turn should increase the incentives for First Nations to adopt a tax law. However, even if non-members are relatively immobile, it is still possible that the province exercising jurisdiction may not matter as much for a First Nation's own uptake.

Columns (2) and (3) suggest that, if the average value of dwellings increases by 10%, then there is a 5.5 to 8.9 percentage point increase in the probability of adopting taxation. However, the correlation between the value of dwellings and tax adoption is stronger among those who adopted property taxation after 2005 (column (5)). The proportion of non-Indigenous residents on reserves is also positively correlated with tax adoption. Focusing on column (3), reserves where less than 50% of residents identified as Indigenous were notably more likely to adopt property taxation than those whose populations were over 90% Indigenous (25.6 percentage points more likely).

These initial correlations largely align with our predictions. Living further from a city is likely associated with an increased cost of providing services to tax holders because of both a lower ability to enter into service agreements with large partner jurisdictions and an increased cost of building up infrastructure. All else equal, higher property values would also increase the revenue associated with taxation. Finally, communities located further from Kamloops would have a higher setup cost of establishing a tax system because of less access to expertise and training.

Since the continuous variables in Table 2 are measured according to different scales, Figure 5 presents coefficient estimates from a specification analogous to that in column (3), where all continuous variables have been standardized prior to their inclusion in the model. This allows us to directly compare the magnitude of the coefficient estimates. This exercise largely confirms

the findings in Table 2. While the coefficient on median income is largest in magnitude, it is imprecisely estimated. Conditional on all other covariates, including the dummy variables, distance to Kamloops continues to be an important correlate of whether or not a nation adopts a tax law by 2021.

The history of on-reserve taxation in most provinces is more complicated than discussed in the brief overview above. Figure 1 couches the major changes discussed in the background section in the broader changes relating to tax policy between 1876 and 2007. Specifically, in 1884, Canada passed the *Indian Advancement Act* that granted greater, municipal-like powers to bands considered “fit” for them (s.3). In principle, this act applied to all “Indians in any of the Provinces or the North-West Territories, including the District of Keewatin” (s.1). In practice, by 1946, “practically all the bands in Ontario, Quebec, and the Maritime Provinces” were covered under this system (MacInnes, 1946).³⁴ However, the *Indian Advancement Act* did not imply taxation authority over non-First Nations citizens, thus taxation powers may not have been commonly used.³⁵ The evidence on whether they were or not is mixed (First Nations Tax Commission, 2014; Indian Taxation Advisory Board, 2014). After the 1951 *Indian Act* amendment, there is some evidence that a few nations in Alberta and Ontario implemented tax regimes in the 1970s under the *Indian Act* (First Nations Tax Commission, 2014, p. 9), although it is not public knowledge whether the intent was to tax non-citizens or their own citizens.

Because of this complicated history, we restrict the sample to British Columbia in column (4), as its on-reserve taxation history is most straightforward. Here, point estimates on the distance to Kamloops and distance from the closest urban center are larger than in the full sample and continue to be statistically significant predictors of property tax adoption. The coefficient on the indicator that equals one if less than 50 percent of the population is Indigenous is large but not statistically significant.

In column (4) we restrict our focus to nations that either never took up tax jurisdiction in our time frame or did so under the FMA. We do this because the quality of the data on tax laws is likely better during this period. Specifically, the stipulation to publish tax laws in the First Nations Gazette became a clear requirement after the passage of the FMA (The

³⁴Note that nations under this system were not wholly self-governing – the legislation also placed a federal agent at as the chairman of the Council (Bartlett, 1978).

³⁵See section 11 of the Act, which can be found: <https://caid.ca/IndAdvAct1884.pdf>. Last accessed February 23, 2022.

First Nations Gazette, 2022). The First Nations Gazette was only created in 1997 by the Indian Tax Advisory board to support the transparency of First Nations' bylaws which became exempt from being published in the Canada Gazette in 1987. The First Nations Gazette has made an effort to include historical bylaws back until 1951, but we are uncertain the extent to which this is complete. Again, the distance to Kamloops and distance from the closest urban center are statistically significant predictors of property tax adoption as is the value of dwellings. Even though the association between having a relatively large non-Indigenous percent of the population is statistically insignificant among adopters after 2005, the coefficient is still economically meaningful—reserves where less than 50% of their populations were Indigenous were 10 percentage points more likely to have a tax law than those whose populations were over 90% Indigenous.

Note that total population, the kilometer distance to the closest CMA, and the distance to Kamloops all enter our specifications in a log-linear functional form, while the proportion of non-Indigenous enters as a step function. In Appendix Figure A1 and A2 we provide a visual justification for these choices of functional form. We show that specifying our control variables in these ways most closely matches the actual relationship between these variables and the probability of implementing property tax jurisdiction by 2021. We show these relationships hold unconditionally, and then conditional on all the covariates included in column 3 of Table 2. For the relationship between the distance to Kamloops and the probability of adopting tax jurisdiction, we also show a figure where we restrict the sample to First Nations within British Columbia. This restriction demonstrates that our estimates are not driven by the extraordinarily large distances between reserves elsewhere in the country and Kamloops. The probability of adopting a tax code by 2021 is linear in the natural logarithm of the distance metrics and total population. This suggests that a 1 kilometer increase in the distance from Kamloops matters twice as much at 10 kilometers as it does at 100 kilometers. Not only do the results in these figures support our functional form assumptions, they also imply that the marginal effect of distance is greater the closer a nation is to Kamloops.

In Appendix Table A1 we show that our results are robust to using a probit model and also to implementing a linear spatial autoregression model that controls for the latitude and longitude of the community centroid. We specifically estimate a model that corrects for spatial

lag dependence of this form. The spatial autoregression model uses a distance weighting matrix based on distance from the centroid of a given reserve that allows for spatial autocorrelation in the dependent and independent variables.

Table 3 examines the learning channel using a different approach. Here, we use the dynamic model described in Section III where we regress an indicator for nation n having signed a tax law by year t on the fraction of other nations in the surrounding economic region who had signed a tax law in a previous period. Column one presents baseline estimates. The coefficient estimate on “% Signed Previously” suggests that when all nations in your economic region have a tax law in a previous period, you are 80.6 percentage points more likely to adopt a tax law in time t . For all years in our analysis, 9% of nations had signed a tax law in a previous period in the mean economic region in our sample. This translates to a 7.25 percentage point increase in the probability of adopting a tax law at the mean. These findings align with the predictions of the head of the First Nations Tax Commission Manny Jules about how First Nations chose to create political change when testifying regarding the *First Nations Property Ownership Act* to the Standing Committee on Aboriginal Affairs and Northern Development in 2012: “...we’re still operating under an oral tradition. First Nations have to be able to hear, they have to be able to see the results.”³⁶ Column (2) conditions on the set of dynamic controls, which include population and scores for income, education, housing, and labor, all from the community well-being database. Communities that are missing controls are dummied out.

The fact that nations tend to adopt taxation jurisdiction after their neighboring nations is suggestive of a learning mechanism, but it could be the case that changes in spatially correlated factors are behind this correlation. Such factors could include changes in the costs of local service provision as a result of changes in non-reserve environments, tax competition, or changes in local off-reserve real estate.³⁷ To gain greater insight into this possibility, columns (3)-(6) evaluate whether the type of tax law that a nation adopts is related to the type of tax law adopted previously by nearby nations. These specifications include both dynamic and static controls

³⁶Canada. Standing Committee on Aboriginal Affairs and Northern Development. (2012). Minutes of Proceedings. 41th Parliament, 1st session, meeting no. 32. Retrieved from the Parliament of Canada website: <https://www.ourcommons.ca/DocumentViewer/en/41-1/AANO/meeting-32/evidence>.

³⁷Reserve fixed effects rule out the role of any time-invariant factors that may influence the surplus from adoption.

and provide evidence that these correlations are not merely artifacts of changing surrounding environments, rather they are due to nations learning the details of administrating tax systems under different regimes. Column (3) shows that nations are more likely to adopt an IA tax law when nations in the surrounding economic region have already adopted an IA tax law and similarly, column (5) shows that nations are more likely to adopt an FMA tax law when nations in the surrounding economic region have adopted an FMA tax law. Statistically speaking, nations are no more likely to adopt an IA tax law after their neighbors adopted an FMA tax law (column (4)). Column (6) shows that nations are 11 times more likely to adopt an FMA tax law when nations in their surrounding economic region have adopted an FMA tax law than they are to adopt an FMA tax law when nations in their surrounding economic region have adopted an IA tax law.

These specifications also reveal a great deal about the importance of the FMA through the patterns in the year fixed effects. Relative to the base year of 1981, starting in 2006, the probability of implementing any tax law, even an *Indian Act* tax law, increases notably. The fact that the timing of the FMA aligns with an increased probability of adopting a tax law is informative about *how* the FMA impacts the incentives for nations to take up tax jurisdiction. As mentioned in the background section, the First Nations Tax Commission supports the development of tax laws under both Section 83 of the *Indian Act* and the FMA while only the FMA allows those tax revenue streams to be used for borrowing. Table 3 shows that after 2006, the probability of implementing tax jurisdiction increased for *both* IA tax laws and FMA tax laws. This potentially indicates that hurdles to developing a tax code were at least part of what prevented nations from taking up tax powers in the years before the FMA, beyond the FMA's additional expected benefits related to the ability to leverage tax revenues for debt financing.

To examine why the distance to Kamloops is important—specifically, whether nations learn directly from formal educational institutions, such as the Tulo Institute, versus from the Indian Tax Advisory Board and the First Nations Tax Commission—we interact the natural log of the distance to Kamloops with an indicator for the post-2006 time period, which is after Tulo opened.³⁸ Doing this shows that after 2006, the distance to Kamloops mattered more than before 2006, which aligns with the timing of the opening of Tulo. We see this as corroborating

³⁸Interacting each of the variables with a full set of year dummies does not change the results.

evidence that the cost of learning about how to implement taxation powers is a critical component of First Nations being able to exercise their jurisdiction. For *Indian Act* tax laws, distance to the closest city also became more important for whether to adopt a tax law after 2006. This may be because the inability to borrow against taxation revenue under the *Indian Act* framework makes the direct potential surplus from taxation more important. This is also reflected by the fact that having 50% of people who are non-Indigenous is a more important predictor of the adoption of tax powers under the *Indian Act* compared to the FMA.

Finally, we also see that economic well-being, as measured by the CWB indices, is positively correlated with the adoption of a tax law. We hesitate to infer the direction of causality here given that tax laws may also influence well-being.

Figure 4, which displays the adoption of First Nations tax jurisdiction by province and year, shows that there was a large increase in the number of nations that adopted tax laws in Alberta and Saskatchewan after 2010. It is possible that increased incomes of non-members living on reserve or revenues from oil and gas businesses operating on reserves changed the relative value of implementing tax jurisdiction on reserves in these oil-rich provinces. We explore this possibility in Table 4. The dependent variable is whether one implements a tax code by a given year and all specifications include reserve fixed effects. Columns (1), (3), and (5) report the results for the full sample while columns (2), (4) and (6) report them for Saskatchewan and Alberta. In the first two columns we control for the distance to Kamloops interacted with dummies for each year. We also control for the log of the population on reserve, and for the proportion of the labor force in primary industries in the surrounding Census Division.³⁹ The next two columns include the interaction of this proportion with year fixed effects.

Column (1) shows that, in the full sample, communities located in Census Divisions where a greater proportion of the labor force work in primary industries are more likely to adopt tax laws. In this specification, the magnitude of the estimate on the distance to Kamloops is larger over time. However, column (2) shows that this same pattern is not present in Saskatchewan and Alberta. The coefficient estimate on the fraction of the labor force in primary industries is not statistically significant in this column, and the distance to Kamloops only becomes statis-

³⁹Ideally, we would like the proportion of people who work in oil and gas, however, these data were not reported consistently across census years in the public use data. In the interest of space, we report the coefficients for the log population and log population times year in Table A2.

tically significant in 2016 and is not economically meaningful in earlier years. This pattern is robust across specifications. We explore this relationship in greater detail in columns (3) and (4) by allowing the relationship between tax adoption and the fraction of the labor force in primary industries to vary over time. Here, we also allow the relationship between the log of the population and tax adoption to vary over time.

While in the full sample, the fraction of the labor force in primary industries becomes less important in later years, the same relationship does not hold in Saskatchewan and Alberta. In fact, post-2011, when commodity prices rose again after the great recession, there is a positive coefficient estimate on the fraction of the labor force in prime industries for Saskatchewan and Alberta. Although this estimate is not statistically significant, it is large in magnitude, suggesting an economically meaningful relationship.

In the final two columns we control for the median income in the surrounding Census Division and allow its impact on tax adoption to vary over time. In the full sample, the coefficient estimate on median income in the surrounding area is not statistically significant and its relationship with tax adoption is relatively constant over time. This pattern differs in Alberta and Saskatchewan. In these provinces, median income is negatively correlated with the probability of adopting a tax law in the omitted year, 1981, but the relationship between median income and tax adoption gradually converged to zero over time. Conditional on median income, the fraction of the labor force in primary industries is a statistically significant predictor of tax law adoption in 2016. Again, this is consistent with the narrative that, for these resource-rich provinces, during time periods when commodity prices increase, the benefits associated with taxation increase, manifesting in a higher likelihood of nations within these provinces adopting their own tax codes.

VI. DISCUSSION

This article quantitatively evaluates the factors associated with First Nations in Canada exercising their tax jurisdiction. We find that forces that lower the cost of service delivery and the set-up costs of implementing a tax code are consistently associated with adoption by the year 2021. Access to information and training seems particularly important for tax law uptake, as measured by the distance to the First Nations Tax Commission and the Tulo Center for In-

digenous Economics. There is also evidence that the likelihood of implementing tax jurisdiction increases when there is the potential for spillover benefits to First Nations citizens on-reserve, as proxied by the number of non-voting residents and higher incomes. We also find evidence of geographic policy diffusion consistent with learning about the costs and benefits of tax law adoption across geographically proximate First Nations.

Future research on the nature of this diffusion would be valuable when considering whether tax adoption by First Nations is efficient or if there are barriers to adoption. There is notable heterogeneity in the realized benefits from taxation. For example, of the approximately \$96 million in property tax and related payments raised in 2018-2019, nearly half of it was raised by only ten nations (Woolley et al., 2021). Future research might consider estimating an explicit learning model such as Buera et al. (2011). Other important additional directions include studying the consequences of the uptake of taxation powers, not just economically, but how taxation may translate into improved capacity for self-governance (Hickey, 2021) and engaging in more cross-country institutional comparisons to explore what might be useful further policy change to enable further Indigenous economic-freedom (Kelly and Woods, 2021).

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STATEMENTS AND DECLARATIONS

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FIGURES AND TABLES

Figure 1: Timeline of Significant Events Related to First Nations Tax Policy

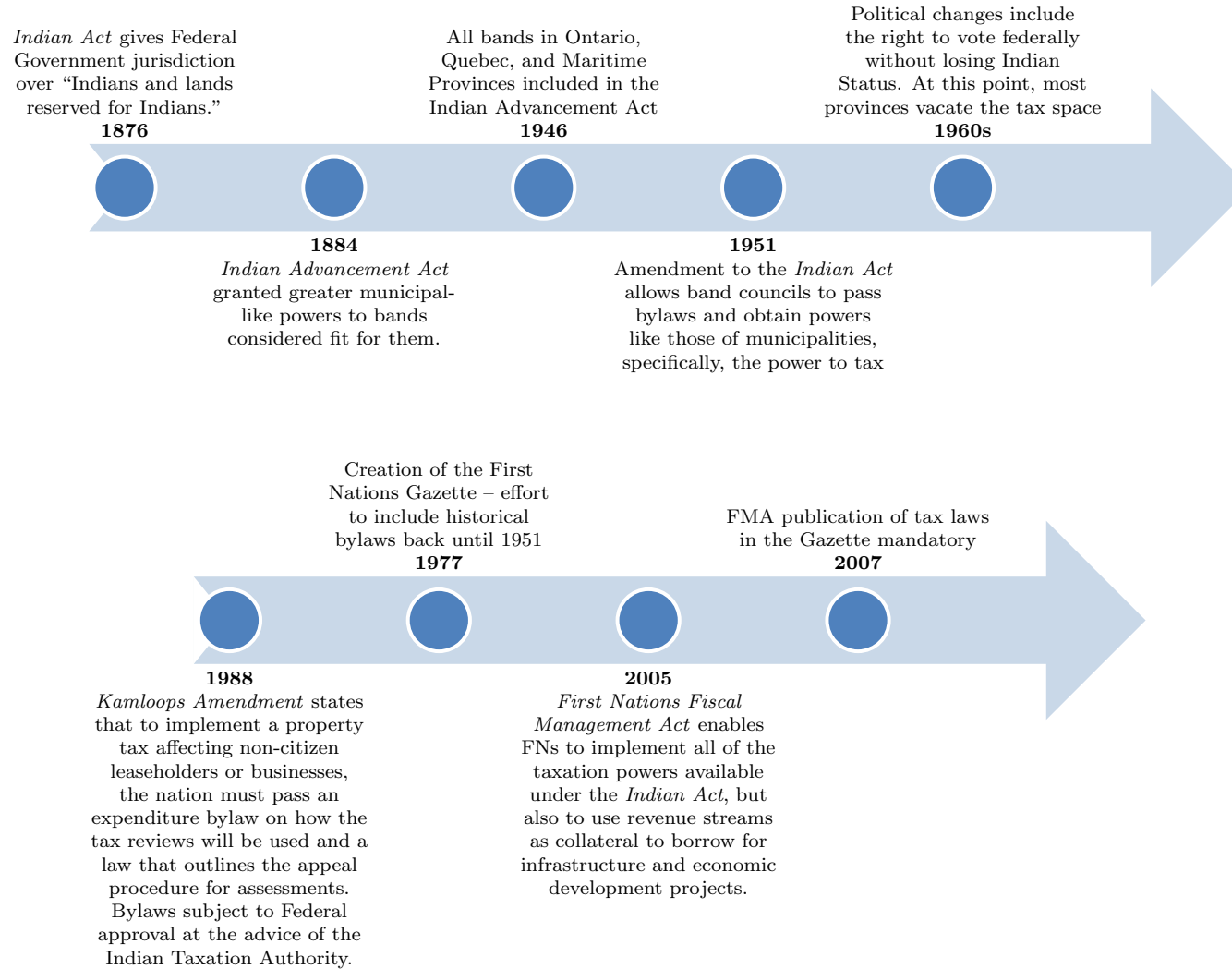
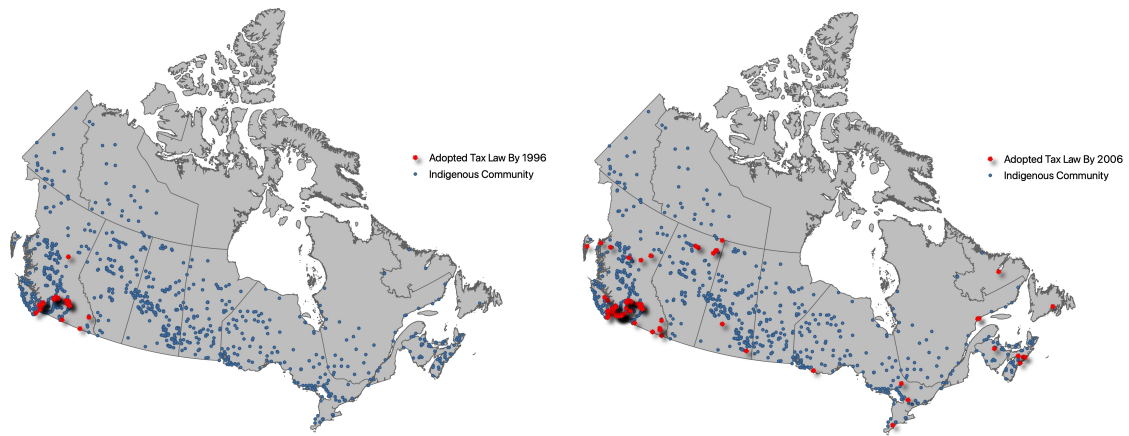


Figure 2: The Cumulative Number of First Nations with Tax Codes Over Time



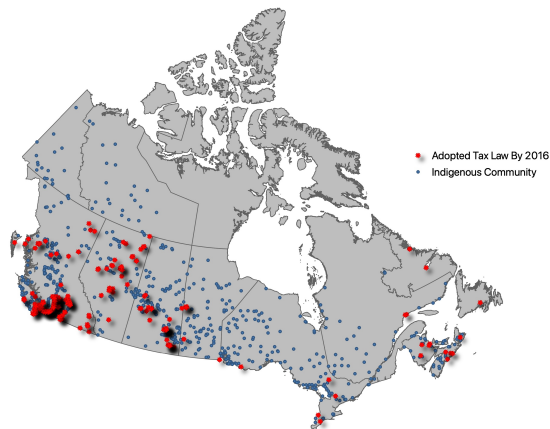
Notes: Depicts the number of bands passing a tax law published in the First Nations Gazette either under Section 83 of the *Indian Act* or the First Nations Fiscal Management Act and the total number of bands with any tax law. Darker vertical dashed line is 1988 with the first amendment to the *Indian Act* and the lighter dashed vertical line is 2005 with the passage of the FMA.

Figure 3: The Geographic Spread in the Adoption of Tax Codes Over Time



(a) Tax codes by 1996

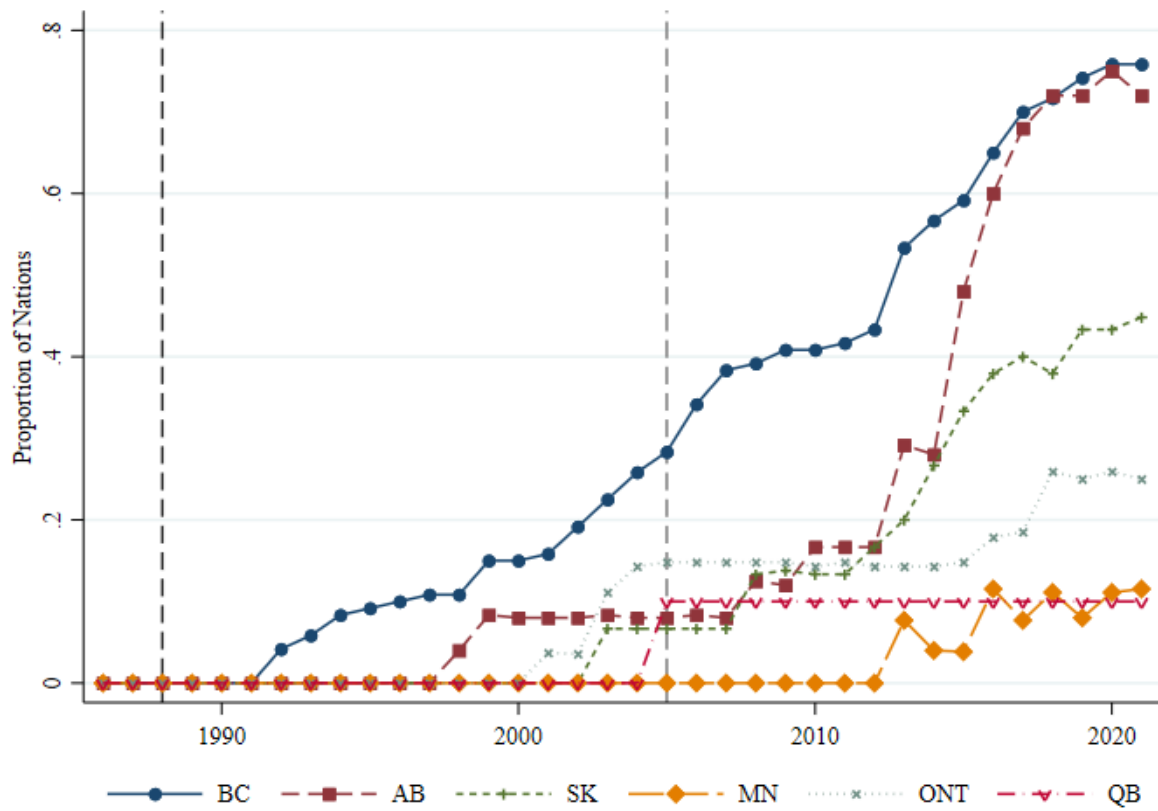
(b) Tax codes by 2006



(c) Tax codes by 2016

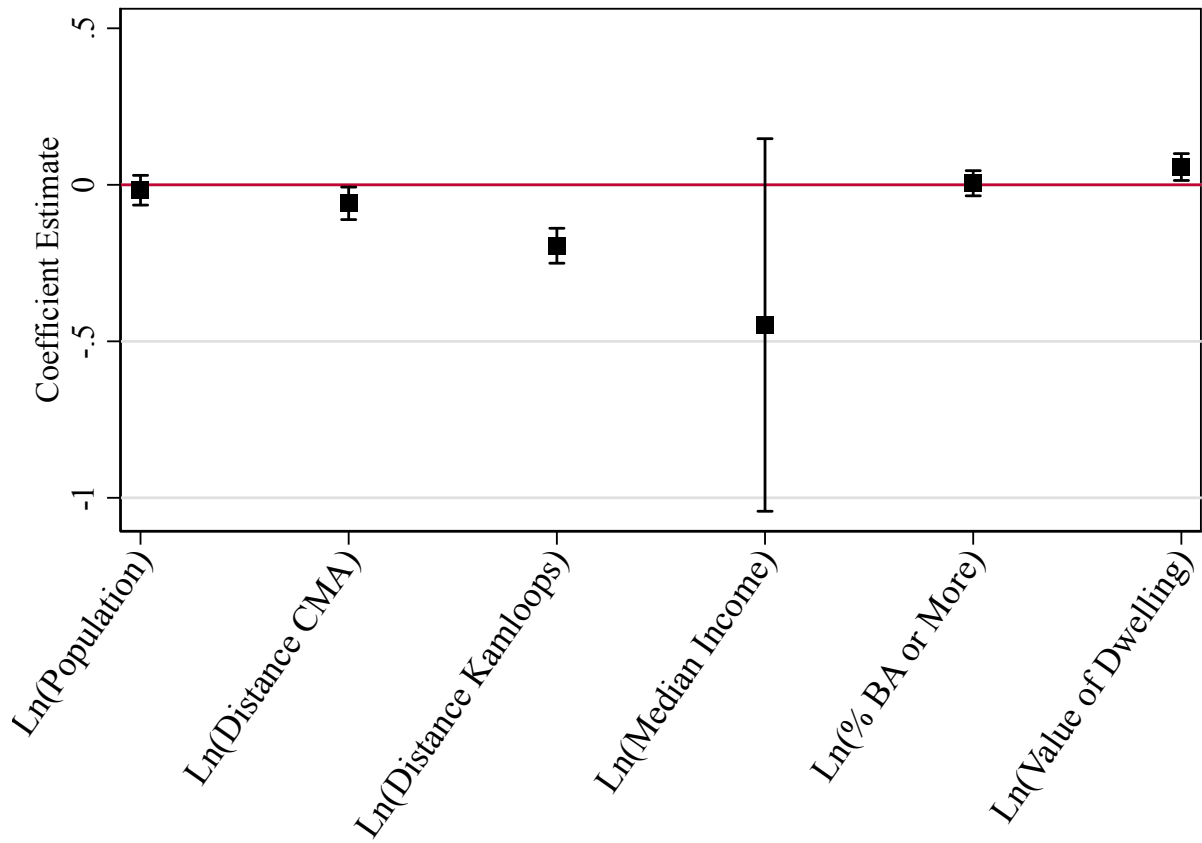
Notes: This plot displays the geographic location of First Nations communities that adopted tax codes at three points in time: 1996, 2006, and 2016. Blue circles correspond to the location of First Nations communities and red stars correspond to First Nations communities that adopted a tax law by the reported census year.

Figure 4: The Proportion of First Nations with a Tax Law by Province



Notes: Depicts the proportion of bands in a province passing a tax law published in the First Nations Gazette either under Section 83 of the *Indian Act* or the First Nations Fiscal Management Act. Darker vertical dashed line is 1988 with the first amendment to the *Indian Act* and the lighter dashed vertical line is 2005 with the passage of the FMA.

Figure 5: Comparison of Normalized Coefficient Estimates



Notes: This figure depicts the coefficient estimates from column three of Table 2 where the continuous variables have been normalized and therefore coefficient estimates can be interpreted as standard deviation increases (or decreases) in the probability of adopting a tax law by 2021. Vertical bands represent 95% confidence intervals which were constructed from standard errors computed using the method of Conley (1999) with a 100 km cut-off and a linear decay estimated with the method of Colella et al. (2019).

Table 1: Summary Statistics: Differences in Characteristics in 1981 Based on Whether a Nation has Taken up Property Taxation by 2021

	Full Sample			Restricted Sample		
	No Tax by 2021 (1)	Tax by 2021 (2)	Difference (3)	No Tax by 2021 (4)	Tax by 2021 (5)	Difference (6)
Total Population	372.81 (449.12)	284.78 (364.58)	88.03*	665.40 (535.90)	636.92 (444.77)	28.48
Average income (2016\$)				9093.39 (4013.92)	11401.67 (9116.59)	-2308.28
Percent Indigenous				76.28 (39.67)	66.76 (41.50)	9.52
Percent with a BA or More	1.29 (2.74)	1.23 (3.58)	0.06	1.55 (2.06)	1.91 (4.54)	-0.36
Average dwelling value	26510.22 (20417.75)	39894.86 (36349.33)	-13384.64***	27345.18 (20633.15)	37185.29 (45637.79)	-9840.12
KM from Closest City	95.67 (81.63)	68.21 (70.34)	27.46***	103.10 (90.96)	74.92 (75.09)	28.19*
KM from Kamloops	1621.35 (1216.34)	764.05 (1061.19)	857.31***	1810.99 (1182.89)	1211.38 (1245.07)	599.61**
Pop. Dens. per 100 KM SQ	0.87 (3.08)	1.29 (2.82)	-0.42	0.91 (3.73)	1.89 (3.74)	-0.98
Alberta	0.09 (0.28)	0.14 (0.35)	-0.06	0.08 (0.27)	0.27 (0.45)	-0.20**
Atlantic	0.07 (0.25)	0.05 (0.22)	0.02	0.05 (0.21)	0.08 (0.27)	-0.03
British Columbia	0.27 (0.44)	0.64 (0.48)	-0.37***	0.15 (0.35)	0.33 (0.48)	-0.19*
Manitoba	0.15 (0.36)	0.03 (0.18)	0.12***	0.21 (0.41)	0.06 (0.24)	0.15**
North	0.01 (0.12)	0.00 (0.00)	0.01*	0.03 (0.17)	0.00 (0.00)	0.03*
Ontario	0.18 (0.38)	0.05 (0.21)	0.13***	0.18 (0.39)	0.08 (0.27)	0.10*
Québec	0.07 (0.25)	0.01 (0.11)	0.06**	0.11 (0.31)	0.04 (0.20)	0.07
Saskatchewan	0.17 (0.37)	0.07 (0.26)	0.10**	0.20 (0.40)	0.14 (0.35)	0.06
Observations	292	152	444	131	51	182

Notes: This table displays sample means with standard deviations in parentheses in columns (1), (2), (4), and (5). Columns (3) and (6) show difference in means tests. The restricted sample includes communities for which we have a complete set of demographic information. Data from the 1981 Census and the First Nations Gazette. Standard deviations are in parentheses. ***, **, *: significant at the 1%, 5%, 10% levels.

Table 2: The Correlation Between Tax Law Adoption and Characteristics Measured Prior to the 1988 Amendment to the *Indian Act*

	(1)	(2)	(3)	(4)	(5)	(6)
ln(Km to a CMA)	-0.0679*** (0.021)		-0.0513** (0.023)	-0.0914*** (0.033)	-0.0362* (0.022)	-0.0377* (0.021)
Ln(Km from Kamloops)	-0.179*** (0.027)		-0.177*** (0.026)	-0.182*** (0.059)	-0.159*** (0.026)	-0.117*** (0.024)
Province Vacated Tax Jurisdiction	0.0166 (0.070)		-0.0297 (0.072)		-0.0584 (0.069)	0.0360 (0.047)
Ln(Total Population)		-0.0681* (0.038)	-0.0170 (0.024)	-0.0593** (0.028)	-0.00369 (0.024)	-0.0331 (0.022)
ln(Median Census Family Income)		-0.0539 (0.075)	-0.0972 (0.066)	0.101 (0.152)	-0.111 (0.068)	-0.0204 (0.043)
ln(Average value of dwelling)		0.0968*** (0.022)	0.0549*** (0.021)	0.0439 (0.028)	0.0597*** (0.019)	0.0184 (0.021)
Percent with a BA or More		-0.00146 (0.009)	0.00171 (0.007)	0.0135 (0.010)	0.00371 (0.007)	-0.00243 (0.004)
<50% Indigenous		0.445*** (0.167)	0.256** (0.120)	0.293*** (0.100)	0.106 (0.205)	0.369*** (0.125)
50-80% Indigenous		0.218* (0.120)	0.132 (0.107)	0.0652 (0.154)	0.129 (0.101)	0.0455 (0.089)
80-90% Indigenous		0.159* (0.094)	0.0650 (0.093)	-0.0146 (0.141)	0.0332 (0.112)	0.0647 (0.084)
Missing Indigenous		-0.350** (0.164)	-0.213* (0.115)	-0.247** (0.118)	-0.0520 (0.194)	-0.361*** (0.127)
Missing Census Income		-0.506 (0.690)	-0.925 (0.609)	1.048 (1.414)	-1.041* (0.632)	-0.212 (0.369)
Just BC				X		
Adopters After 2005					X	
Adopters Before 2005						X
Observations	501	501	501	163	452	406

Notes: The proportion of the population with Indigenous identity is scaled from zero to 100. Coefficients from linear probit models. Data from the 1981 Census and the First Nations Gazette. Standard errors in parentheses, computed using the method of Conley (1999) with a 100 kilometer cut-off reported with a linear decay estimated with the method of Colella et al. (2019). ***, **, *: significant at the 1%, 5%, 10% levels.

Table 3: The Correlation Between Tax Law Adoption and Previous Tax Law Adoption in the Surrounding Economic Region

	Any Tax Law		IA Tax Law		FMA Tax Law	
	(1)	(2)	(3)	(4)	(5)	(6)
% Taxed Prev	0.806*** (0.111)	0.608*** (0.106)				
% Taxed IA Prev			0.580*** (0.101)	0.561*** (0.108)		0.113** (0.053)
% Taxed FMA Prev				0.328 (0.308)	1.279*** (0.329)	1.216*** (0.335)
Year 1991	-5.55e-17 (0.013)	-0.00244 (0.012)	-0.00306 (0.012)	-0.00313 (0.012)	-0.00396 (0.004)	-0.00427 (0.004)
Year 1996	0.0315** (0.013)	0.0245* (0.013)	0.0239* (0.013)	0.0239* (0.013)	-0.00749* (0.005)	-0.00775* (0.004)
Year 2001	0.0264** (0.013)	0.0204 (0.013)	0.0215* (0.012)	0.0223* (0.012)	-0.0113** (0.005)	-0.0154*** (0.005)
Year 2006	0.0556*** (0.014)	0.493*** (0.095)	0.392*** (0.074)	0.370*** (0.066)	0.248*** (0.049)	0.204*** (0.052)
Year 2011	0.0663*** (0.022)	0.513*** (0.099)	0.398*** (0.078)	0.377*** (0.070)	0.290*** (0.051)	0.240*** (0.054)
Year 2016	0.169*** (0.026)	0.616*** (0.109)	0.461*** (0.078)	0.427*** (0.066)	0.315*** (0.053)	0.264*** (0.057)
ln(KM to Kamloops) X Post-2006		-0.0405*** (0.015)	-0.0241** (0.010)	-0.0213** (0.008)	-0.0316*** (0.008)	-0.0273*** (0.008)
ln(KM to CMA) X Post-2006		-0.0370*** (0.010)	-0.0395*** (0.008)	-0.0385*** (0.008)	-0.0102* (0.006)	-0.00787 (0.006)
50% Indigenous		0.0776* (0.044)	0.0872** (0.043)	0.0856** (0.043)	0.0516 (0.034)	0.0454 (0.033)
Ln(Total Population)		-0.00430 (0.005)	-0.00222 (0.005)	-0.00222 (0.005)	-0.00379 (0.002)	-0.00380 (0.002)
CWB Income Score		0.000601 (0.001)	0.000940 (0.001)	0.00106 (0.001)	0.000944* (0.001)	0.000966* (0.001)
CWB Education Score		0.000186 (0.001)	0.000488 (0.001)	0.000456 (0.001)	0.000455 (0.000)	0.000573 (0.000)
CWB Housing Score		0.000983** (0.000)	0.000756** (0.000)	0.000738** (0.000)	0.000352 (0.000)	0.000302 (0.000)
CWB labor Force Score		0.00193*** (0.001)	0.00135** (0.001)	0.00128** (0.001)	0.000506 (0.000)	0.000349 (0.000)
Observations	6888	6839	6839	6839	6839	6839
R^2	0.534	0.548	0.556	0.557	0.347	0.349

Notes: This table displays coefficient estimates from fixed effects models where the dependent variable in columns one and two is a binary variable that equals one if the census subdivision is associated with a First Nation that adopted a tax law by year t . The dependent variable in columns three and four is an indicator for adopting a tax law under the *Indian Act* (IA), and in columns five and six it is an indicator for adopting a tax law under the FMA. The independent variables of interest are computed at the economic region level and represent the percent of reserves in an economic region that signed a tax law in a previous year. When population or a CWB score is missing, we include missing indicators. Additional controls include indicators of 50-80% of the reserve population being Indigenous and 80-90% Indigenous (neither is statistically significant or large) with the base being more than 90% of the population Indigenous. All columns include reserve fixed effects. Only (1999) standard errors reported with a 100 kilometer cut-off reported with a linear decay estimated with the method of Colella et al. (2019). ***, **, *: significant at the 1%, 5%, 10% levels.

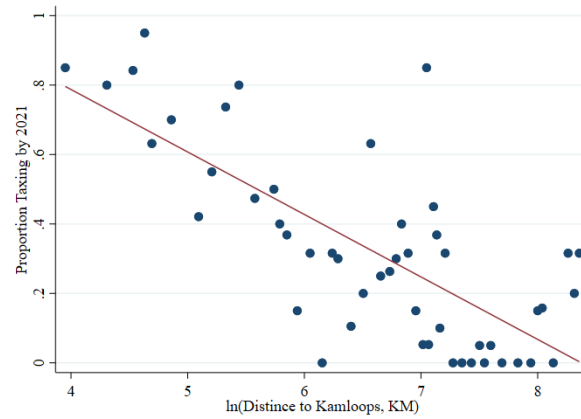
Table 4: The Correlation Between Tax Law Adoption and the Industrial Composition of the Surrounding Census Division's labor Force

	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Dist Kamloops)×1991	-0.00198 (0.015)	0.00365 (0.048)	-0.00233 (0.014)	0.0264 (0.047)	-0.00573 (0.015)	0.0349 (0.058)
Ln(Dist Kamloops)×1996	-0.0505*** (0.018)	-0.00589 (0.050)	-0.0493*** (0.017)	0.0206 (0.050)	-0.0534*** (0.018)	0.00505 (0.069)
Ln(Dist Kamloops)×2001	-0.0603*** (0.013)	0.0227 (0.048)	-0.0608*** (0.012)	0.0551 (0.049)	-0.0635*** (0.013)	0.0923 (0.063)
Ln(Dist Kamloops)×2006	-0.0842*** (0.017)	0.0444 (0.051)	-0.0852*** (0.016)	0.0747 (0.054)	-0.0857*** (0.017)	0.131* (0.077)
Ln(Dist Kamloops)×2011	-0.0910*** (0.017)	-0.00608 (0.062)	-0.0952*** (0.015)	0.0415 (0.060)	-0.0962*** (0.016)	0.0911 (0.068)
Ln(Dist Kamloops)×2016	-0.176*** (0.021)	-0.287*** (0.110)	-0.174*** (0.019)	-0.253** (0.109)	-0.171*** (0.019)	-0.186* (0.113)
Frac LF Prime Ind	0.329** (0.129)	-0.224 (0.237)	0.273** (0.126)	0.0327 (0.247)	0.202 (0.161)	-0.187 (0.235)
Frac LF Prime Ind ×1991			0.00753 (0.134)	-0.0944 (0.135)	-0.0343 (0.141)	0.0444 (0.174)
Frac LF Prime Ind ×1996			-0.292** (0.143)	-0.127 (0.149)	-0.344** (0.153)	0.0617 (0.205)
Frac LF Prime Ind ×2001			-0.477*** (0.122)	-0.0363 (0.146)	-0.498*** (0.126)	0.157 (0.186)
Frac LF Prime Ind ×2006			-0.724*** (0.151)	-0.0977 (0.205)	-0.736*** (0.156)	0.0519 (0.221)
Frac LF Prime Ind ×2011			-0.657*** (0.169)	-0.0233 (0.249)	-0.696*** (0.173)	0.160 (0.259)
Frac LF Prime Ind ×2016			-0.567*** (0.218)	0.510 (0.355)	-0.684*** (0.232)	0.673* (0.386)
Median Income					0.0136 (0.027)	-0.142* (0.074)
Median Income×1991					-0.0206 (0.024)	0.0755 (0.053)
Median Income×1996					-0.0251 (0.024)	0.0538 (0.060)
Median Income×2001					-0.0152 (0.024)	0.113* (0.058)
Median Income×2006					-0.00650 (0.025)	0.133** (0.062)
Median Income×2011					-0.00867 (0.025)	0.128** (0.065)
Median Income×2016					0.00882 (0.026)	0.133** (0.063)
Ln(population) X Year FE AB & SK Only		X	X	X	X	X
Observations	4203	1040	4203	1040	4203	1040
R ²	0.633	0.583	0.637	0.589	0.639	0.595

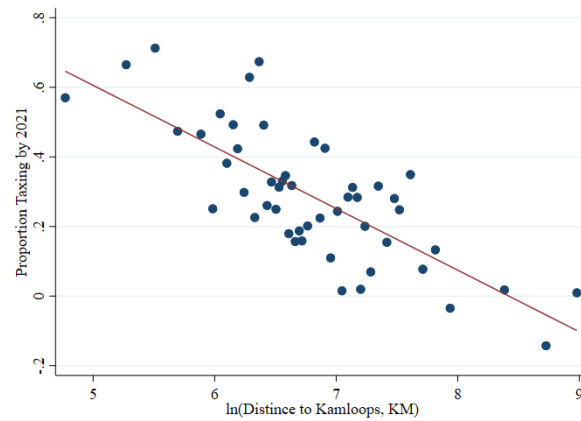
Notes: This table displays coefficient estimates from fixed effects models where the dependent variable is a binary variable that equals one if the census subdivision is associated with a First Nation that adopted a tax law by year t . The variables associated with the fraction of the labor force in prime industries and the median income are computed at the census division level, while the total population and distance to Kamloops variables are computed by census subdivision. All columns control for the log of population. Conley (1999) standard errors reported with a 100 kilometer cut-off reported with a linear decay estimated with the method of Colella et al. (2019). ***, **, *: significant at the 1%, 5%, 10% levels.

A. APPENDIX

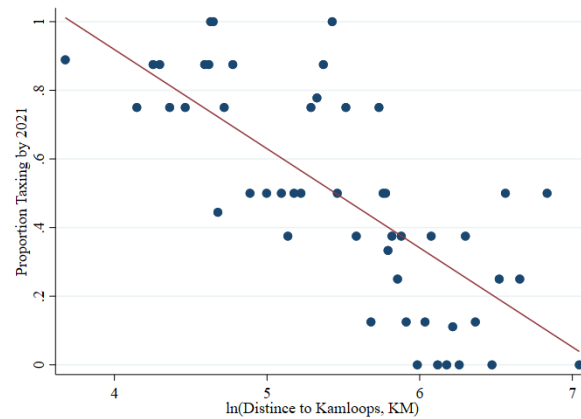
Figure A1: Functional Form of Relationship Between Distance to Kamloops and the Probability of Implementing Property Tax Jurisdiction.



(a) $\ln(\text{Distance to Kamloops})$, Unadjusted, Full Sample



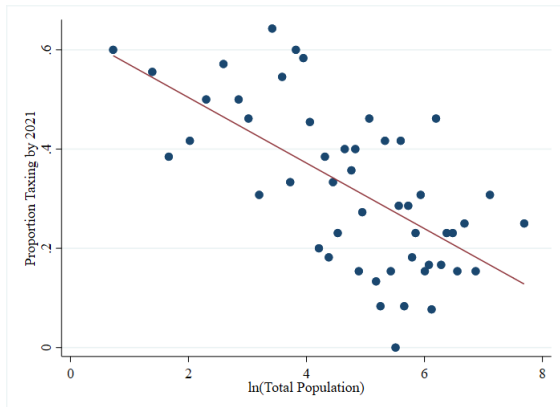
(b) $\ln(\text{Distance to Kamloops})$, Adjusted



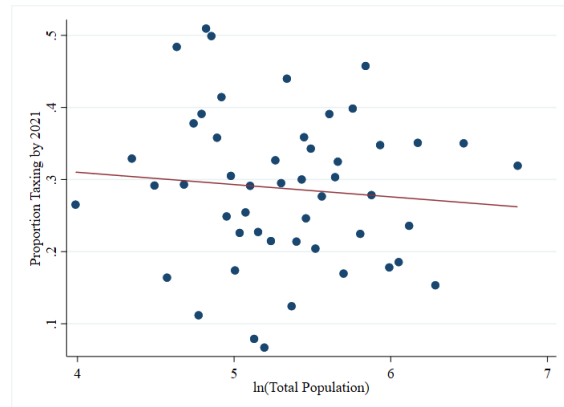
(c) $\ln(\text{Distance to Kamloops})$, Just BC

Notes: The panels show binned scatter plots with 50 bins and a line of best fit. The first panel shows the unadjusted relationship, the second the relationship conditional on all other variables controlled for in column three of Table 2, and the third column just for British Columbia. Distance to Kamloops is as-the-crow-flies and in kilometers.

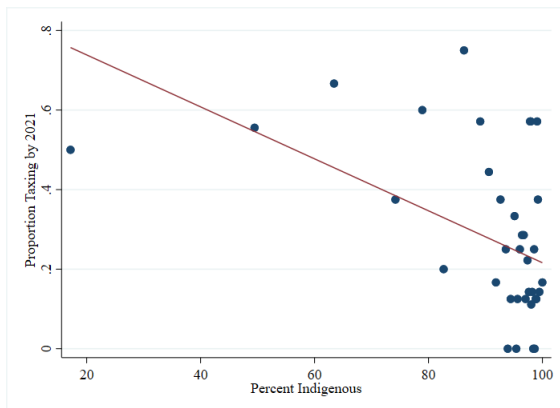
Figure A2: Functional Form of Relationship Between Population Metrics, Distance to the Closest Census Metropolitan Area and the Probability of Implementing Property Tax Jurisdiction



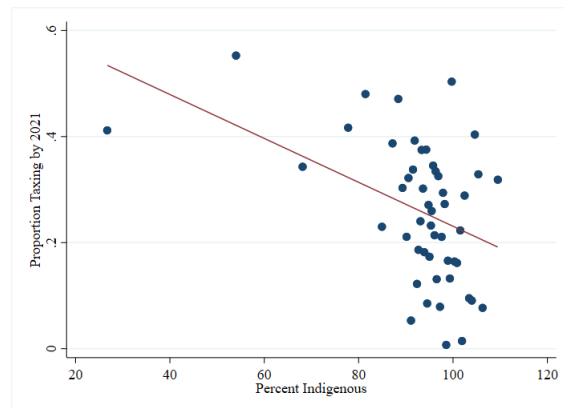
(a) $\ln(\text{Total Population})$, Unadjusted



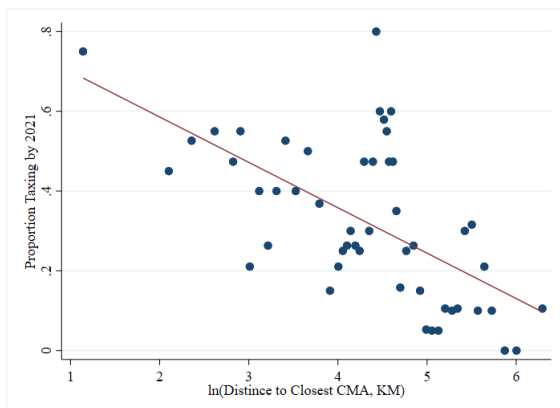
(b) $\ln(\text{Total Population})$, Adjusted



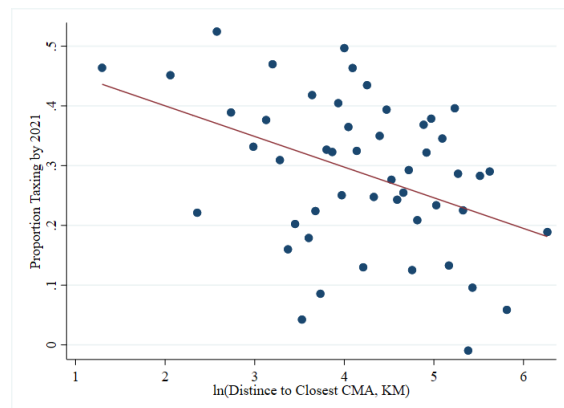
(c) Proportion Non-Indigenous, Unadjusted



(d) Proportion Non-Indigenous, Adjusted



(e) $\ln(\text{Distance to CMA})$, Unadjusted



(f) $\ln(\text{Distance to CMA})$, Adjusted

Notes: The left panels show binned scatter plots with 50 bins and a line of best fit for the unadjusted relationship. The right panels show the relationship between the likelihood of taxation adoption the dependent variable of interest conditional on all other variables controlled for in column three of Table 2.

Table A1: Robustness: Marginal Effects of the Correlation Between Tax Law Adoption and Characteristics Measured Prior to the 1988 Amendment to the *Indian Act*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ln(Distance to CMA)	-0.0723*** (0.020)		-0.0562*** (0.021)	-0.108** (0.043)	-0.0325* (0.019)	-0.0247** (0.012)	-0.0204 (0.022)
Ln(Km from Kamloops)	-0.179*** (0.032)		-0.175*** (0.033)	-0.210*** (0.077)	-0.134*** (0.028)	-0.0600*** (0.017)	-0.114* (0.058)
Province Taxes Absent FN Tax	-0.00378 (0.059)		-0.0514 (0.065)		-0.0691 (0.055)	0.0163 (0.031)	-0.0327 (0.068)
Ln(Total Population)		-0.0684* (0.035)	-0.0197 (0.037)	-0.0830 (0.082)	-0.00771 (0.033)	-0.0237 (0.020)	-0.0124 (0.029)
Missing Census Income (d)		-0.527 (0.524)	-0.864*** (0.251)	0.861*** (0.289)	-0.874*** (0.229)	-0.0491 (0.418)	-0.718 (0.478)
ln(Median Census Family Income)		-0.0577 (0.066)	-0.113* (0.068)	0.167 (0.245)	-0.108* (0.057)	-0.00525 (0.042)	-0.0737 (0.052)
ln(Average value of dwelling)		0.121*** (0.034)	0.0690*** (0.025)	0.0570 (0.039)	0.0725*** (0.023)	0.0167 (0.013)	0.0505*** (0.019)
Percent with a BA or More		-0.00214 (0.007)	0.00265 (0.007)	0.0214 (0.015)	0.00390 (0.006)	-0.000468 (0.003)	0.00358 (0.006)
<50% Indigenous		0.432*** (0.152)	0.255 (0.164)	0.348 (0.217)	0.0605 (0.182)	0.203 (0.124)	0.0789 (0.127)
50-80% Indigenous		0.228** (0.110)	0.146 (0.129)	0.0826 (0.179)	0.122 (0.122)	0.0289 (0.079)	0.115 (0.079)
80-90% Indigenous (d)		0.163 (0.114)	0.0759 (0.126)	-0.0315 (0.180)	0.0431 (0.122)	0.0190 (0.061)	0.0243 (0.086)
Missing Indigenous %		-0.254** (0.100)	-0.173 (0.119)	-0.321 (0.259)	-0.0113 (0.166)	-0.0978*** (0.038)	-0.0385 (0.130)
Latitude							-0.00056 (0.003)
Longitude							-0.0134 (0.009)
Just BC				X			
Adopters After 2005					X		
Adopters Before 2005						X	
Spatial Regression							X
Observations	501	501	501	163	452	406	501

Notes: Marginal effects from a probit model reported in columns one to six with robust standard errors. The proportion of the population with Indigenous identity is scaled from zero to 100. Column seven contains the estimates from linear spatial autoregression models that use a distance weighting matrix based on distance from the centroid of a given reserve that allows for spatial autocorrelation in the dependent and independent variables. These columns also report the Moran statistic and its associated p-value. Data from the 1981 Census and the First Nations Gazette. Standard errors are in parentheses. ***, **, *: significant at the 1%, 5%, 10% levels.

Table A2: Additional Coefficient Estimates from Table 4.

	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Total Pop)	0.0437*** (0.014)	0.0303* (0.017)	0.0425*** (0.014)	0.0103 (0.019)	0.0405*** (0.014)	0.00750 (0.019)
Ln(Total Pop)×1991			-0.00214 (0.012)	-0.00348 (0.018)	-0.00490 (0.012)	-0.00285 (0.020)
Ln(Total Pop)×1996			-0.00683 (0.010)	0.00688 (0.019)	-0.0104 (0.011)	0.000215 (0.020)
Ln(Total Pop)×2001			0.00485 (0.011)	0.0219 (0.018)	0.00264 (0.011)	0.0265 (0.020)
Ln(Total Pop)×2006			-0.00118 (0.011)	0.0214 (0.016)	-0.00162 (0.011)	0.0308* (0.018)
Ln(Total Pop)×2011			0.0113 (0.011)	0.0382*** (0.015)	0.0111 (0.011)	0.0437*** (0.015)
Ln(Total Pop)×2016			-0.00122 (0.013)	0.0353** (0.015)	-0.00164 (0.012)	0.0416*** (0.016)
AB & SK Only		X		X		X
Observations	4203	1040	4203	1040	4203	1040
R^2	0.633	0.583	0.637	0.589	0.639	0.595

Notes: This table displays coefficient estimates from fixed effects models where the dependent variable is a binary variable that equals one if the census subdivision is associated with a First Nation that adopted a tax law by year t . The variables associated with the fraction of the labor force in prime industries and the median income are computed at the census division level, while the total population and distance to Kamloops variables are computed by census subdivision. Conley (1999) standard errors reported with a 100 kilometer cut-off reported with a linear decay estimated with the method of Colella et al. (2019). ***, **, *: significant at the 1%, 5%, 10% levels.