

# Elite Coalitions, Limited Government, and Fiscal Capacity Development: Evidence from Bourbon Mexico\*

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## Abstract

Limited government supported by elite coalitions can facilitate the development of fiscal capacity by tying rulers hands and enhancing their credibility. This paper presents quasi-experimental evidence of the effect of the Mining Tribunal, an institution for the mining elite in late colonial Mexico that credibly constrained the Spanish Crown, on the development of fiscal capacity. The mining elite resisted the development of a strong fiscal state that was controlled by unconstrained Crown authorities. However, when mine owners were granted the ability to organize and protect their economic interests through a corporation, they ceased resisting. This, in turn, enabled the Crown to invest in strengthening its fiscal capacity and raise more taxes from sectors other than mining. Using detailed fiscal data from regional royal treasuries, I assess the effect of the Mining Tribunal by comparing mining and non-mining areas over time. Difference-in-differences estimates indicate that this institution led to a substantial increase in the resources assigned to civil administration, as well as in revenues from non-mining production and trade.

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## I. Introduction

Institutions of limited government can enhance the credibility of government policies when they are supported by political coalitions committed to uphold them. For this reason, they have been linked to increased access to credit and lower borrowing rates for governments, higher levels of private investment, and long-term economic development (e.g., North and Weingast 1989; DeLong and Shleifer 1994; Acemoglu, Johnson and Robinson 2001). These institutions can also lead to the development of fiscal capacity. Because tax-paying elite groups may only be willing to fund a state that serves their interests, they allow fiscal capacity to emerge when rulers can credibly commit to implement their spending priorities (e.g., Bates and Lien 1985; Levi 1988; Hoffman and Rosenthal 1997; Timmons 2005; Dincecco 2011; Dincecco, Federico and Vindigni 2011; Cox 2016).

Allowing tax-paying elite groups to credibly control spending decisions of states seems like a high bar. Are there conditions under which states can expand their ability to tax without such a large concession to the economic elite? History suggests that this may be the case — fiscal capacity has developed under institutions that can constrain rulers' taxation but fall short of overseeing expenditures, such as the medieval assemblies in Castile and Britain (before the Glorious Revolution), or the corporations of *ancien régime* France. Contemporary cases include fiscal autocracies, in which conflicts over the approval of budgets lead to a reversion to last year's budget and executives are allowed to reallocate spending. In this paper I develop an argument that specifies the conditions under which this is possible, and provide supportive quasi-experimental evidence from late colonial Mexico.

Economic elite groups have an incentive to fiercely resist the development of the state's ability to enforce taxation when they fear a stronger confiscatory state in the future. However, if rulers allow these elite groups to organize and effectively coordinate to protect their economic interests even in the face of a strong fiscal state, they no longer have a reason to resist fiscal capacity development. I argue that, when this happens, rulers may then choose to invest in expanding capacity — even when they are constrained in their ability to increase the future tax burden on the economic elite — if they expect to raise revenues from other sectors in the economy.

In other words, rulers can use institutions of limited government as a bargaining chip and offer them to powerful elite groups that may otherwise seek to deter the state's fiscal expansion. These institutions, by enabling the coordination of the economic elite to constrain the ruler's

future tax policies, help to solve one of the many credibility problems that plague absolutist monarchs. An organized elite in coalition with a ruler that may be tempted to renege can discipline him by threatening to withhold credit, stage a coup, or, in the case of a regional elite, support independence. Historically, various institutions supported by a similar coalition have played this role. They include medieval assemblies, which often had veto power over new taxes but did not oversee expenditures; corporations in early modern Europe, which organized elite groups along sectoral lines and allowed them to more effectively defend their fiscal interests; and contemporary fiscal autocracies in which legislative bodies approve new taxes, but failures in parliamentary negotiations lead to budget reversions that favor the executive.

I examine the role of one such institution, the Mining Tribunal, on the development of fiscal capacity in eighteenth-century Mexico, at the time under Spanish absolute rule. This corporation, led by elected representatives of the mine owners, enabled the coordination of a geographically scattered mining elite, and was able to successfully constrain the Crown's mining tax policy. In addition to organizing miners politically, the Tribunal became a major lender to the Crown. For these reasons, credibility was achieved both through the latent threat of interrupting lending, and, in more extreme cases, of supporting political independence.

Just as the Crown was creating the Tribunal, it also launched a series of reforms to modernize its fiscal apparatus in Mexico. These investments in fiscal capacity, however, were often met with resistance from the local elite, and had uneven success across the territory. I take advantage of the fact that the Tribunal only made it easier for mine owners to organize; in contrast, the coordination costs of the local economic elite in non-mining regions were not reduced by the creation of the Tribunal. This situation allows me to use non-mining areas — where the Crown's colony-wide policies were also implemented — as a comparison group in evaluating the effects of the Mining Tribunal.

Using detailed yearly fiscal data at the regional level, I evaluate the impact of the Tribunal on the intensity of the Crown's investments in fiscal capacity and their success in increasing tax revenue. I compare mining and non-mining areas before and after the creation of the Mining Tribunal, and find that it almost doubled the average expenditures in civil administration and tax collection activities. Furthermore, the Tribunal, through its increase in fiscal capacity, led to more than a threefold increase in revenue from sectors other than mining: trade and agricultural production.

I find evidence of parallel trends in the outcomes between (treated) mining and (control) non-mining areas prior to the creation of the Tribunal, which lends credibility to the difference-in-differences empirical approach. Moreover, the results are robust to changing the window of analysis, and to a selection-on-observables strategy. Finally, there is no evidence to suggest that these findings are simply a result of increased economic activity brought about by the creation of the Tribunal.

In addition to unpacking one of the mechanisms through which elite coalitions that support institutions of limited government can lead to the development of fiscal capacity — namely, by effectively constraining rulers’ tax policy and abating elites’ resistance to fiscal capacity expansion — this paper makes an empirical contribution. Past empirical studies of the consequences of institutions of limited government have focused on case studies that analyze outcomes before and after some institutional change (e.g., North and Weingast 1989); that contrast two cases (e.g., Schultz and Weingast 2003; Stasavage 2003; Sussman and Yafeh 2006); or that compare changes within a sample of countries over time (e.g., Dincecco 2009; Cox 2016). In this paper, I improve upon these designs by providing quasi-experimental estimates of the effect of one such institution.

The remainder of this paper proceeds as follows. I first review past work on the credibility problems that have plagued absolute rulers, and the range of possible solutions that have emerged historically. These prior studies motivate the model I present next. I then provide some background on late colonial Mexico, describe the creation of the Mining Tribunal, and detail the ways in which it effectively constrained the Crown. Finally, I outline the empirical strategy, data, and present results before concluding.

## **II. Credibility and Institutions of Limited Government**

Institutions of limited government can increase the range and effectiveness of government policy because they enhance the credibility of sovereign promises. This idea has been explored for various government policies, including rulers’ promises to pay contracted debt, to uphold property rights, and to spend public funds in specific ways. In all of these, institutions solve an underlying credible commitment problem: sovereign promises are likely to be broken in the absence of constraints on the ruler, who benefits from renegeing on them. As a consequence, access to credit becomes difficult and expensive, private investment and economic growth dwindles, and tax payers resist the expansion of fiscal capacity.

Specifically for the case of fiscal capacity development, the relevant form of credibility that

is emphasized in the literature is over spending platforms. That is, tax-paying elite groups only allow the expansion of the government’s ability to enforce taxation policies if they are able to control how revenues are spent (e.g., Bates and Lien 1985; Levi 1988; Hoffman and Rosenthal 1997; Timmons 2005). This fiscal contract approach has found supportive evidence cross-nationally (e.g. Dincecco 2009; Cox 2016).<sup>1</sup> In this paper, I theoretically explore the conditions under which commitment over taxation, but not over spending platforms, may be sufficient.

Beyond fiscal capacity, conflicting evidence on the effects of limited government — in Britain and elsewhere — as well as a careful consideration of the argument, has led subsequent work to challenge some of its underlying assumptions.<sup>2</sup> In one important revision to the theory, Stasavage (2003, 2007) argues that Parliamentary dominance over the Crown needed to be complemented with a political coalition committed to upholding specific sovereign promises — in Britain, the ruling Whig party — for credibility to be actually enhanced (see also Pincus and Robinson 2011).

In developing the argument, I build on this majoritarian insight and focus on the role of institutions as a coordinating device that enables a dispersed coalition (in this case, a geographically scattered mine-owning elite) to discipline the ruler, rather than as a fixed constitutional order that structures the actions of political actors.

### III. Limited Government and Fiscal Capacity Development

In this section, I lay out an argument that describes how the inability of rulers to credibly commit to a powerful but dispersed economic elite can generate resistance to investments in fiscal capacity.<sup>3</sup> An institution that reduces this elite’s coordination costs of influencing tax

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<sup>1</sup>For the British case, however, Epstein (2000) minimizes the role of the Glorious Revolution and the institutional changes it brought on the development of fiscal capacity, and instead attributes it to the process of political centralization.

<sup>2</sup>The argument was forcefully presented by North and Weingast (1989), who provide suggestive evidence of a reduction in the British government’s cost of borrowing following the Glorious Revolution, after which Parliament gained dominance over the Crown. Various empirical studies, however, suggest that institutions of limited government may not be necessary nor sufficient in enabling rulers to access credit at low-cost (e.g., Sussman and Yafeh 2000, 2006; Murphy 2012; Summerhill 2015). The effect of the Glorious Revolution on the security of property rights has also been challenged (e.g., Clark 1996; Epstein 2000).

<sup>3</sup>Other theories of state capacity development emphasize the role of common interests, such as international war (e.g., Tilly 1992; Besley and Persson 2011; Hoffman 2012; Scheve and Stasavage 2012), elite conflict (e.g., Arias 2013; Garfias 2015; Mares and Queralt 2015), endowments and geography (e.g., Maysnar, Moav and Neeman 2013; Sánchez de la Sierra 2015), critical junctures (e.g., Kurtz 2013), and historical legacies (e.g., Migdal 1988; Slater and Soifer 2010).

policy (but not necessarily spending policy), can enhance the credibility of the ruler with the elite, and enable the development of fiscal capacity. Institutions such as corporations in early modern Europe and medieval parliaments — whose power was often limited to the approval of new taxes — may have played this role, by allowing powerful elite groups to constrain tax policies and enabling rulers to set up incipient fiscal bureaucracies (e.g., Root 1989; Stasavage 2010; van Zanden, Buringh and Bosker 2011).

When taxation policy cannot be influenced by dispersed individual members of the elite, but a ruler’s investments to enhance fiscal capacity can be resisted by each of these members locally, they will find it in their interest to sabotage capacity investments. This can happen, for instance, if members of a well-defined economic elite, such as mine owners, are geographically dispersed and find it hard to coordinate against unfavorable polity-wide taxation policies. These same mine owners, however, might be well positioned to undermine the ruler’s efforts to strengthen his fiscal apparatus in each of the miners’ areas of influence, so that the ruler’s administration never develops the ability to enforce his unconstrained tax policies in the future. Costly resistance to investments can be achieved, for instance, by allowing or even promoting tax revolts from peasants in response to the introduction of tax bureaucracies in a particular region. Faced with local elite resistance, the ruler will be deterred from wasting resources in an investment that is likely to fail, and as a consequence fiscal capacity will remain low.

One way to enhance the credibility of the ruler is to allow elite members to organize, so that their coordination costs of confronting the ruler to influence tax policy are not insurmountable. With an institution that can credibly constrain tax policy, elite members no longer have a reason to use their resources to resist investments in fiscal capacity, and the ruler is more likely to undertake them when there are other sectors to tax. These ideas are formalized below.

**Simple formalization of the argument.** To fix ideas, assume that a revenue-maximizing ruler,  $R$ , taxes economic activity in two periods,  $s = 1, 2$ . The resources in the economy in any given period,  $\omega_s$ , can be divided into those generated by the ruler,  $\omega_s^R$  (e.g., Crown monopolies), those generated by an economic elite,  $\omega_s^M$  (e.g. mining), and those produced by the rest of the population,  $\omega_s^L$  (e.g., trade and agricultural production), such that  $\omega_s = \omega_s^R + \omega_s^M + \omega_s^L$ .

In this stylized model, all taxation is redistributive; that is, whatever the ruler taxes from

the economy (at a rate  $\tau_s$ ), he takes for himself. Taxation capacity, however, is limited. For simplicity, assume that the ruler cannot tax at all in the first period (i.e.,  $\tau_1 = 0$ ), but can enhance the fiscal capacity to  $\tau_2 \in (0, 1]$  with a costly investment  $k > 0$ . This requires building a bureaucracy that can gather information and tax production across the territory. For simplicity, both  $\tau_2$  and  $k$  are given exogenously by the tax-enforcement technologies available at the time.

The economic elite,  $M$ , do not benefit from taxation and thus hope to avoid it altogether. They can take a fraction of their first-period income,  $r \in [0, 1]$ , and use it to resist the ruler's investment in future fiscal capacity, taking advantage of their local influence. Their resistance can undermine the ruler's investment effort and render it useless with probability  $\gamma(r) = r^{1/2}$ .<sup>4</sup> The elite's choice of  $r$  thus captures both the cost of resisting and its effectiveness in destroying capacity investments — the active promotion of local revolt against tax authorities, for example, could be captured by a high  $r$ , since it would likely achieve a withdrawal of the fiscal administration but would also directly affect the elite's economic activities.

Thus, in period 1, the ruler decides whether to pay the cost  $k$  of the investment in future fiscal capacity (decision  $i$ ). The economic elite observes this choice and decides  $r$ , whether they will resist and with what intensity. In period 2, the ruler uses any fiscal capacity at his disposal to tax the whole economy.

**Unconstrained rule.** Given a ruler that can tax using all the force of the state at any given time, the economic elite faces the following problem:

$$\begin{aligned} \max_{\{r\}} u^M &= u_1^M + E(u_2^M) \\ &= \underbrace{(1-r)\omega_1^M}_{u_1^M} + \underbrace{\gamma(r)\omega_2^M + [1-\gamma(r)]\omega_2^M(1-\tau_2)}_{E(u_2^M)}, \end{aligned}$$

with interior solution  $r^* = \left[ \frac{\tau_2 \omega_2^M}{2\omega_1^M} \right]^2$ . Intuitively, greater potential fiscal capacity in the second period (i.e., a larger  $\tau_2$ ) prompts a higher level of ex-ante resistance, as does a higher expected future production.

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<sup>4</sup>This functional choice is a simplification; all that is needed for the argument is that  $\gamma(\cdot)$  is twice differentiable and that  $\gamma'(r) \geq 0$  and  $\gamma''(r) \leq 0$ .

The ruler, in turn, also maximizes his present net utility:

$$\max_{i \in \{0,1\}} u^R = \underbrace{\omega_1^R - \mathbb{1}(i=1)k}_{u_1^{R1}} + \underbrace{\omega_2^R + [1 - \gamma(r^*)]\tau_2[\omega_2^M + \omega_2^L]}_{E(u_2^{R1})}.$$

He can anticipate the economic elite's behavior, and thus takes  $r^*$  as given. Future fiscal capacity will only be enhanced if the ruler expects to benefit from the investment. This is the case when  $u_{i=1}^R \geq u_{i=0}^R$ , or, equivalently, when

$$[1 - \gamma(r^*)]\tau_2[\omega_2^M + \omega_2^L] \geq k. \quad (\text{a})$$

That is, for the ruler to undertake a fiscal capacity-enhancing investment, its cost cannot be too large relative to the potential benefits of greater taxation powers. Condition (a) makes clear that, for a high enough resistance to investments by the economic elite, the ruler will choose not to invest in fiscal capacity. For this reason, in this case even the passive non-elite sector ( $L$ ) remains under-taxed.

**Limited government for the economic elite.** The previous result suggests that, under some conditions, the economic elite has the ability to deter the ruler from building fiscal capacity that will increase their tax burden in the future. For this reason, the ruler might want propose a bargain to the economic elite: in exchange of allowing the development of fiscal capacity to tax the non-elite sector, the elite could get fiscal exemptions in the future. This sovereign promise, however attractive for the economic elite, is not immediately credible. An unconstrained second-period ruler will be able to use his newly acquired fiscal capacity to tax as he pleases; here, at capacity.

One way to enhance the credibility of this promise is to effectively constrain the ruler's future behavior. Here, I consider this credibility innovation as exogenous, to illustrate its effects on fiscal capacity investments, and on the second-period revenue from the non-elite sector. Credibility can come from institutional innovations that increase the number of veto points over policymaking (e.g., North and Weingast 1989; Stasavage 2003). This can be achieved in many ways; for instance, by enabling the coordination of elite groups to effectively protect their economic interests along sectoral lines. Rulers, then, would keep their agreements because they fear the retaliation of a coordinated and organized elite. They can do this by imposing a high cost on the ruler if he reneges on his sovereign promise; for example, they can decide to oust the ruler — by supporting political independence — or to collectively



stop providing the Crown with credit.

Here, I model this ability to constrain the ruler's tax policy in a very simple way, by assuming that the economic elite can now reduce its own tax rate by the scalar  $\rho \in [0, 1)$ , such that the effective tax rate in the second period is lower than the one selected by the ruler, at  $\rho\tau_2$ .

With this new ability to influence tax rates in the second period, the economic elite's decision to resist now changes — they no longer face future maximum extraction from a fiscally capable state, and thus may not be willing to spend as much of their present income to resist investments in capacity. This is reflected in their new optimal resistance,  $\underline{r}^* = \left[ \frac{\rho\tau_2\omega_2^M}{2\omega_1^M} \right]^2$ , which is smaller than  $r^*$ .

The ruler's decision to invest in fiscal capacity, as a consequence of lower elite resistance, also changes:

$$[1 - \gamma(\underline{r}^*)]\tau_2[\rho\omega_2^M + \omega_2^L] \geq k. \quad (\text{b})$$

Is this condition easier to meet than under unconstrained rule? When the non-elite sector of the economy is sufficiently large relative to the elite sector, it is the case that condition (b) is easier to satisfy.<sup>5</sup> That is, when the promise of elite fiscal privilege is credible, fiscal capacity is enhanced even at higher investment costs, as compared to the situation of an unconstrained ruler that can set tax rates as he pleases.

Since higher fiscal capacity enables the ruler to freely tax the non-elite sector, a second consequence of an elite-based form of limited government is to increase tax revenue from the this sector.

To sum up, even in a purely redistributive taxation model where a ruler can invest in taxation capacity and an economic elite can resist those investments, institutions that credibly limit future extraction from the elite can have an impact on fiscal capacity development.<sup>6</sup>

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<sup>5</sup>To see this, compare the left hand side of (b) to that of (a):

$$\begin{aligned} [1 - \gamma(\underline{r}^*)]\tau_2[\rho\omega_2^M + \omega_2^L] &> [1 - \gamma(r^*)]\tau_2[\omega_2^M + \omega_2^L] \\ \omega_2^L &> \omega_2^M \frac{[1 - \gamma(r^*)] - \rho[1 - \gamma(\underline{r}^*)]}{\gamma(r^*) - \gamma(\underline{r}^*)}. \end{aligned}$$

The inequality holds for large enough values of  $\omega_2^L$ . At an extreme, when  $\rho = 0$  and the economic elite can credibly escape taxation completely, the inequality simplifies to  $\omega_2^L > \frac{1 - \gamma(r^*)}{\gamma(r^*)} \omega_2^M$ . In this case, when the elite's resistance is very effective in ruining investments in fiscal capacity, the non-elite sector need not be too large relative to the elite sector for investments to be more feasible with elite limited government.

<sup>6</sup>When the ruler can use revenue to produce public goods that are valuable to the economic elite, such

Specifically, when the non-elite sector of the economy is large enough:

1. Rulers are more likely to invest in fiscal capacity under elite limited government.
2. Tax revenue from the non-elite sector is likely to be higher under elite limited government.

#### **IV. Limited Government for Mine Owners**

I evaluate these ideas in late colonial Mexico, ruled at the time by the Spanish Bourbon dynasty. I focus on one specific institution, the Mining Tribunal, and argue that it played a credibility-enhancing role for the Crown in its relationship with the mine-owning elite. As a consequence of their newly gained influence over taxation policy, the mine owners did not resist the Crown's investments in fiscal capacity. This led to a striking increase in non-mining tax revenue, particularly from agricultural production and trade, which stands out in comparative terms. At the end of the Bourbon period, the per capita tax burden in Bourbon Mexico was, according to rough estimates, ten times as high as that in the Anglo-American thirteen colonies, and higher than in Spain and pre-revolutionary France (Marichal 2007, p. 54).

Throughout the eighteenth century, the Crown relied on mining, especially silver, as its primary source of revenue in Mexico (see figure 1). Silver extracted in Mexico accounted for two thirds of world production, and constituted, as one colonial civil servant put it, "the most important item of the Crown and foments not only all the Nations of Europe but also the principal nations of the rest of the globe" (cited in Stein and Stein 2003, p. 163).

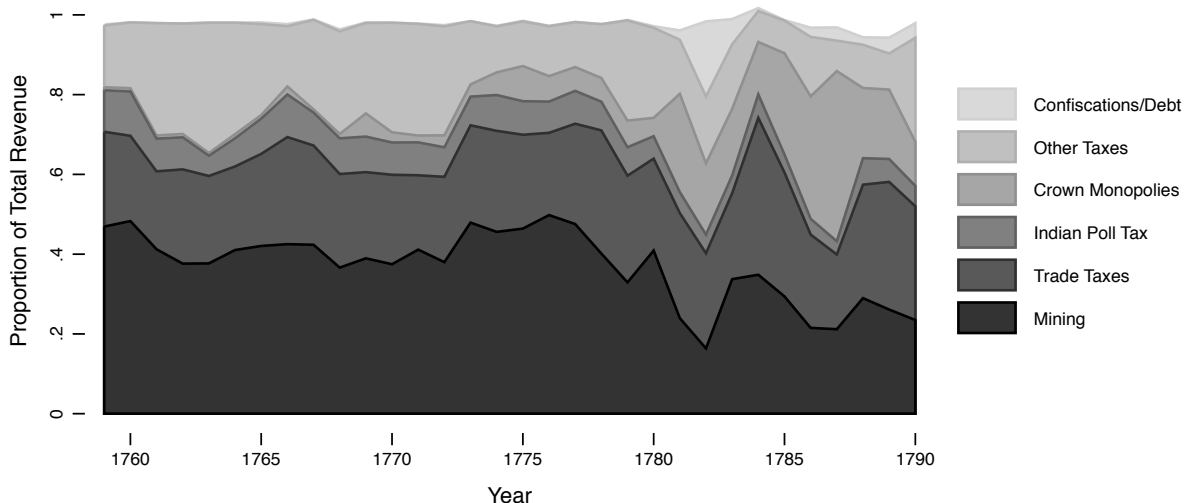
Because of the production technology at the time, direct taxation of silver did not require a particularly capable fiscal state that was able to monitor and enforce, so long as the taxes were relatively low. The most effective silver-processing technique at the time was amalgamation — the patio process —, which required mercury in a well-known proportion (Von Humboldt 1834; Brading 1971). This key input, however, was produced in Spain and was distributed by a Crown monopoly. This allowed tax collectors to know with precision how much silver would be produced, and to condition mercury provision to the prompt payment of silver tax dues. Taxes could then be easily collected as long as the rates were low enough — higher rates could induce miners to switch to smelting, a wasteful technique that did not require

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as infrastructure or national defense, these results would strengthen, since higher fiscal capacity can be in their interest and would push towards weaker resistance to the ruler's investments.

mercury.

**Figure 1:** Sources of Colonial Revenue (1759-1788)



Note: Total revenue excludes revolving funds (*en caja, depósitos, and Real Hacienda en común*) and transfers from other treasuries. Because transfers sometimes come from treasuries outside of Mexico, the categories do not always sum exactly to 100%.

The mining sector's decline in the 1760s, related to mercury shortages, strongly impacted colonial revenues. This, in combination with the looming threat of war with Britain, and particularly the occupation in 1762 of Havana — one of the most important Spanish colonial cities — during the Seven Years' War, pushed the Crown to scramble for additional revenues in Mexico to protect its North American possessions (Sánchez Santiró 2001; Marichal 2007).

Following José de Gálvez's general inspection of the colony, tasked with the objective of increasing revenues, the idea of a tribunal for miners began to be discussed. Given the importance of mining in the colonial economy, the large mine owners across the country constituted the undisputed economic elite, along with a small group of import merchants based in Mexico City (Brading 1973).<sup>7</sup> Enabling and encouraging the coordination of this important group to organize was a costly decision for the Crown, who knew well about the constraints that corporations placed over royal policy.<sup>8</sup> Still, following the publication of an influential diagnostic of the problems in the mining sector, the mine owners themselves

<sup>7</sup>For the seventeenth and most of the eighteenth centuries, Mexico City's merchant guild, the *Consulado*, farmed the Crown sales taxes, and had a monopoly over the luxury goods imported from Spain (Smith 1948; Brading 1971).

<sup>8</sup>For example, Stein and Stein (2003) describe how the trade corporations in Spain and the major colonial ports shaped the Crown's ability to implement free trade between its colonies.

drafted the Tribunal's charter, and, after revisions from the Crown, the institution was officially established in 1777 (Howe 1968; Brading 1971).

The Tribunal was created with three formally recognized general functions. First, it was expected to provide credit for promising mining projects, and a seigniorage tax on silver was earmarked to fund the Tribunal's working capital. A second function was to promote technical innovation in mining and train mining experts. Finally, the regional mining deputations were to take over all legal disputes related to mining as a first instance, substituting the *Audiencia*, where proceedings were slow and judges were not well versed in mining issues.<sup>9</sup>

The institution itself, however, was designed to represent the interests of the miners, which gave it an explicitly political role. The general administrator and the senior staff of the Tribunal were selected by a general board of mining representatives, who were in turn elected by the vote of the mine owners in each mining deputation. Thus, the Tribunal provided an organization that mine owners, dispersed throughout the large Mexican territory, could readily use to coordinate and defend their interests against potential intrusions by Crown authorities, as well as negotiate policy concessions. In their proposal, the mine owners explicitly highlighted the political role for the Tribunal. They considered that, until then, the sector had been "leaderless, [and] therefore it was necessary to establish an executive body who could act as a negotiator with the Crown" (Velasco Ávila et al. 1988, p. 73).

The representative structure of the Tribunal was well suited to reduce the miners' coordination costs of defending themselves against potential abuses by the Crown. The Tribunal was effective in advocating for those policies supported by a plurality of mine owners, despite existing quarrels within the mining sector. Conflicts often arose between mine owners over the allocation of labor, mercury, or property rights over particular shafts; and the Crown strategically used these conflicts to play mine owners off of each another (e.g., Brading 1971). These differences notwithstanding, miners shared a common interest in keeping the Crown's tax policy in check. Moreover, coordination was especially hard given the dispersion of mining districts over the large Mexican territory and given the high costs of communication.<sup>10</sup> The Tribunal addressed these problems by voicing the common interests of miners through representatives that were in close proximity to colonial authorities.

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<sup>9</sup>Only cases that involved large sums could appeal a first instance decision; appeals were handled first by the *Audiencia*, and after 1783 by the Tribunal itself.

<sup>10</sup>When mining representatives were summoned to discuss the creation of the Tribunal, for example, there was a contentious exchange of correspondence that went on for months over the reimbursement of the delegates' expenses (Howe 1968).

The mining elite, coordinated through the Tribunal, could credibly limit the Crown's mining tax policy. While the Tribunal, in its banking role, was supposed to fund mining projects, it also lent to the Crown and soon became one of its most important creditors in Mexico (Howe 1968; Flores Clair 1998). In fact, prior to 1781, the Crown had not issued debt nor contracted loans in the colony.<sup>11</sup> Over the next two decades, private lenders advanced almost 6.8 million pesos to the Crown through the Tribunal — almost 40% of all contracted debt in Mexico (see table A.1 in the appendix). If the Crown reneged or engaged in predatory behavior using its enhanced fiscal capacity, the Tribunal could interrupt lending, just like corporations in Absolutist France (e.g., Root 1989). While the Tribunal did not have a monopoly over the issuance of debt — like the Bank of England for the case of Britain — its resources represented a major source of credit for the Crown, and were particularly important in times of war.

The threat of halting lending materialized at the turn of the XIX century, when the Crown's political situation turned precarious in Europe with the French occupation in 1808 and in Mexico with the Hidalgo rebellion of 1810. The fiscal behavior of the Crown became increasingly predatory; it enacted new taxes on the transportation and production of minerals and imposed forced contributions (Velasco Ávila et al. 1988). Following this turn in royal policy, the Tribunal advanced no loans; the last one was extended in 1802 and its last donation was granted in 1808 (Marichal 2007).

If withholding credit failed, the mine owners organized through the Tribunal could, as a last resort, throw their support behind political independence. The consequences of independence would be disastrous for the Crown, not only because it would lose an important source of imperial revenue, but also because access to credit could shut down altogether, as most of its debt in Spain and abroad was backed with Mexican silver. After the Napoleonic occupation, the Tribunal's leadership flirted with the idea of political autonomy in addition to suspending all lending to the Crown, when its general administrator voiced his support for a national junta to govern Mexico. Ultimately, however, the Tribunal aligned itself with the conservative faction that prevailed (Howe 1968).

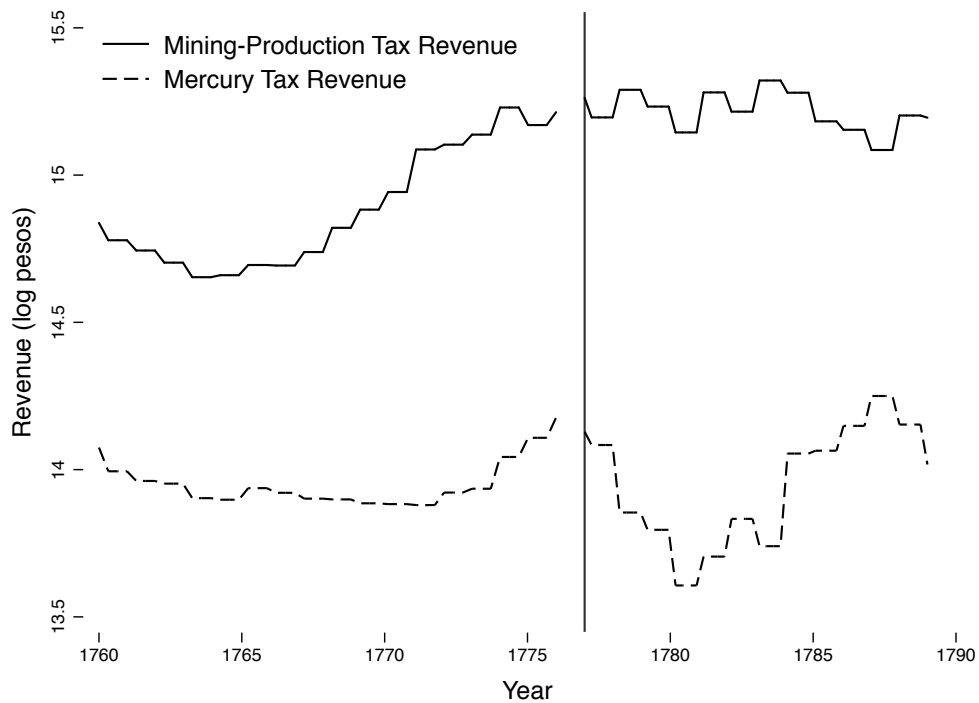
Before the arrangement between the mine owners and the Crown broke down, the Tribunal proved to be an effective source of credibility for more than two decades. The educational and

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<sup>11</sup>In Spain, the Bourbon dynasty only contracted new debt until 1769, when it issued life annuities. These efforts were followed in 1780 by a semi-coercive loan on public deposits and finally by the issuance of bonds (*vales reales*), the Crown's main debt instrument in Spain (Torres Sánchez 2015).

credit-provision objectives were resounding failures, but its political activities rapidly started to produce results.<sup>12</sup> Almost immediately after its creation, the Tribunal set out to influence mining policy by drafting a mining code, to replace the outdated 1584 *Ordenanzas de Nuevo Cuaderno*. The new code, approved by the Crown in 1783, clarified legal definitions to settle property rights disputes, and regulated credit contracts and labor relations. It included labor-coercive provisions favorable to the owners of mines, such as the legalization of forced labor from indigenous communities around mines, vagrancy laws, and the exemption of mine workers from the military draft.

**Figure 2:** Total Mining and Mercury Revenue Before and After the Mining Tribunal



Note: Five-year moving yearly averages before and after the creation of the Mining Tribunal in 1777.

More relevant for the development of the fiscal capacity, the Tribunal was also able to successfully influence the Crown’s tax policy in two important dimensions, direct taxes and taxes over mining inputs. First, direct taxes on gold were reduced to a third and those on silver — by far the most important mineral in Mexico’s mining industry — were not increased; tithes were even suspended for risky enterprises.

<sup>12</sup>The Tribunal’s judicial role also proved highly effective. By outsourcing legal conflict resolution powers to the mine owners, litigations were resolved promptly, which reduced some of the uncertainty around mining investments (Brading 1971).

As noted earlier, taxes on silver production were relatively easy to collect, though the maximum feasible rates were limited by the effect of taxes on the miners' profits. Raising taxes too much could induce a shift from amalgamation to smelting, a processing technique that wasted more silver but required no mercury, and thus facilitated evasion. Hence, under a low fiscal capacity state, mine owners faced a trade off: adjusting the silver extraction process to easily evade taxes meant a lower silver yield. The Crown, when incapable of enforcing taxes, had to be careful not to select a tax rate high enough to trigger this shift towards evasion. However, with a capable fiscal apparatus evasion would become hard even with smelting, and the Crown could have more flexibility to increase tax rates. It was therefore no minor achievement of the Tribunal to prevent the Crown from enacting tax hikes on silver after its fiscal capacity increased over the next decades.

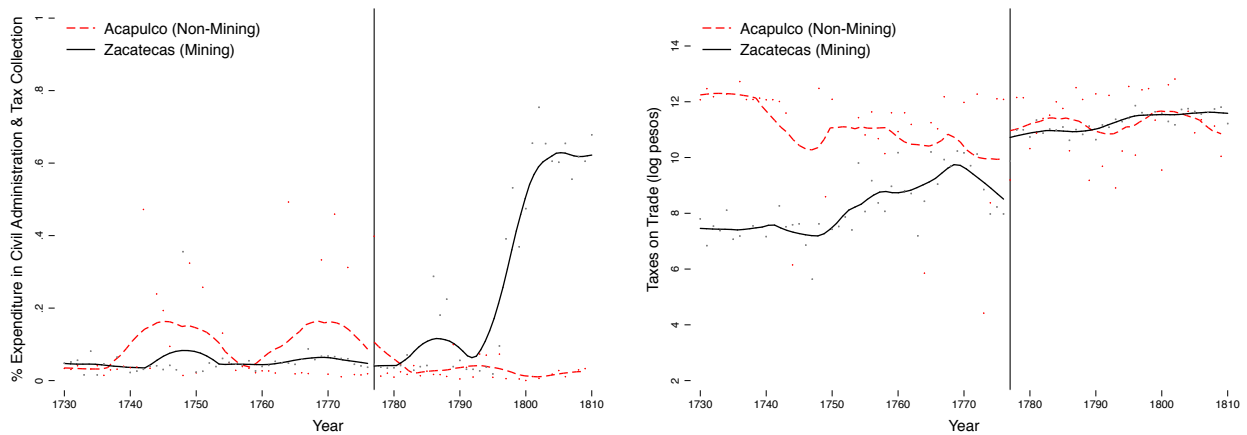
The Tribunal was also able to exact tax privileges in a second dimension: mining inputs. Tax concessions over inputs were as important as those over production because they directly reduced the sector's formal tax burden, at the same time as the Crown's ability to enforce taxation was increasing. The price of silver-processing inputs that were provided by Crown monopolies, such as salt and powder, was reduced; and other inputs directly related to mining, such as leather, mules, and horses, were exempted from the sales tax (Velasco Ávila et al. 1988; Flores Clair 2008).

As the Tribunal's creation was announced, the price of mercury, controlled by a Crown monopoly, was reduced 25%. Figure 2 reflects this policy in the data: revenue from mercury fell right after the creation of the Tribunal, likely as a result of this price change, while tax revenue from mining production remained steady. Furthermore, the influence of the miners' corporation on this policy realm did not wane over time. For example, a few years later, in 1782, when the head of the colonial revenue service requested a price increase, the Crown denied it (de Fonseca and de Urrutia 1853).

These achievements suggest that the Tribunal was in fact able to effectively constrain the fiscal arm of the Crown in the mining sector. The theory outlined in the previous section suggests that the Tribunal, by constraining the mining tax policy of the Crown, should have led to reduced resistance of the mining elite to investments in fiscal capacity, and thus to an increase in these investments by the Crown in places dominated by mine owners and in which the non-mining sector was large enough. A direct result of these investments should have been an increase in tax revenue from non-mining sources.

The proven success of the Tribunal in limiting tax policy does seem to have paved the way for the Crown’s subsequent efforts to enhance fiscal capacity. For instance, one major investment in capacity was the transition to the direct administration of the sales taxes (*alcabalas*).<sup>13</sup> These taxes generated around 10% of total revenue in the early 1770s (see figure A.1 in appendix). At roughly the same time as the Tribunal’s charter was being approved in 1777, the Crown also decided to take over the direct administration of all the regional customs houses, most of which had previously been farmed out. These taxes were usually collected at the entrance of towns or in public markets, and thus required trained personnel and a complex administration. Once in place, this administration provided the Crown the capacity to enforce any new approved taxes.

**Figure 3:** Civil Administration and Tax Revenue from Trade in Two Treasuries



Note: Nadaraya-Watson regressions with Epanechnikov kernels and bandwidth= 2.5. Before the direct administration of sales taxes in 1777, farm-tax contracts in Acapulco and Zacatecas were negotiated for periods of more than one year, with no payments in between (Sánchez Santiró 2001). Therefore, years with no tax revenue from trade before 1777 are excluded from the smoothed lines.

Capacity-enhancing investments such as the direct administration of the sales tax might not have seemed as threatening to the mine owners — who could turn to the Tribunal to constrain subsequent tax policy — as they were for other economic elites. In the non-mining port city of Acapulco, for instance, elite resistance to the new direct administration of the sales taxes was intense, and the investments from the Crown to make the new system work

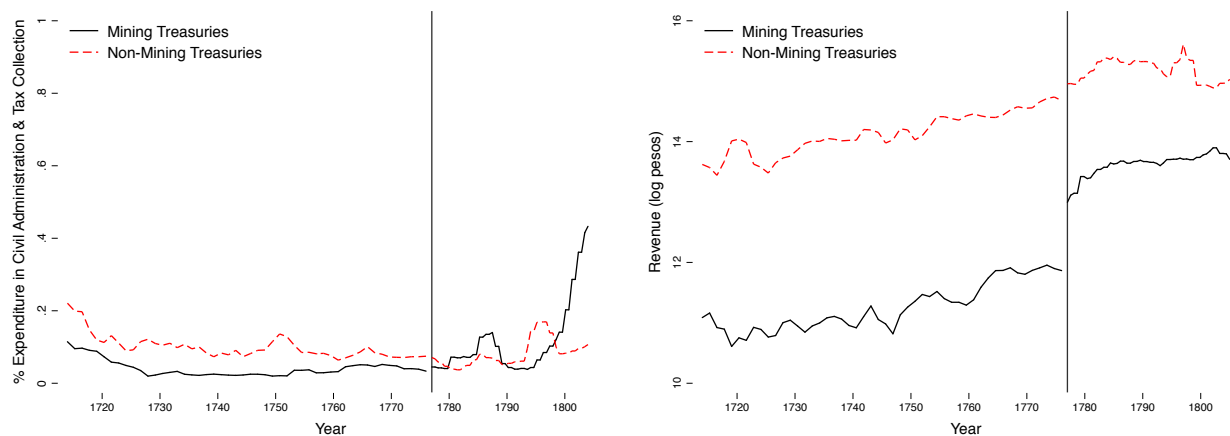
<sup>13</sup>Liquor taxes (*pulques*), which amounted to around 3% of total revenue, were also completely taken over by the Crown’s direct administration (Hernández Palomo 1979). Similarly, agricultural tithes — from which the Crown claimed one ninth — began to be increasingly directly collected by the Church instead of being farmed out. In the Mexico Archbishopric, for example, full direct administration was achieved when the last tax farming lease was annulled in 1782 (Costeloe 1986).



were insufficient. The administrator of the tax “found fierce opposition to his work from the most affluent families, who through their power had been evading tax payments for many years, or at least paying below the stipulated amounts” (Hernández Jaimes 2008, p. 55). He quit the job after a few months of conflict, which included a period of house arrest following his attempts to tax to one of these local notables. His successors — nine of them in less than a six-year period — faced similar difficulties, and continuously complained about insufficient salaries to hire the necessary tax collectors.<sup>14</sup>

These conflicts are reflected in the trends of one measure of fiscal capacity — civil administration expenditures — and of tax revenue from (non-mining) trade in figure 3, which compares Acapulco with the mining district of Zacatecas. In the latter region, the proportion of expenditures dedicated to raising taxes and setting up local civil administration increases shortly after the creation of the Mining Tribunal, and again in the mid-1790s, while in Acapulco it remains on the same trend. Tax revenue from trade (including sales taxes) also displays a noticeable increase in Zacatecas after the Mining Tribunal, but remains flat for Acapulco.

**Figure 4:** Colonial Civil Administration and Total Tax Revenue from Trade Before and After the Mining Tribunal



Note: Five-year moving yearly averages before and after the creation of the Mining Tribunal in 1777.

In fact, the pattern of civil administration expenditures and tax revenue from trade in these two treasuries is very similar to that of the colony as a whole. Figure 4 shows total civil

<sup>14</sup>Other examples of resistance in a non-mining region come from the Mixteca and Sierra Zapoteca regions in Oaxaca, where the efforts of Crown officials to enforce taxation on cochineal — a highly valuable dye — led to two uprisings, in 1774 and 1785, that nearly took regional proportions. Taylor (1979) notes that, in central Mexico, the most common cause of revolts was the attempt to collect new or higher taxes.

administration expenditures as a proportion of total expenditure, as well as total tax revenue from trade, across all mining and non-mining regions.<sup>15</sup> The administration of the colonial state expands visibly in mining areas after the creation of the Tribunal and again in the late 1790s, but remains flat in non-mining areas, where the local elite has no institution that can credibly limit the Crown. Trade and agricultural production taxation — which affected sectors of the economy other than mining — jumps up right after 1777, and remains at a new high for the next couple of decades. In contrast, the trend in non-mining areas displays no visible change.<sup>16</sup>

## V. Research Design

To evaluate the effect of the Tribunal more systematically, I build on this aggregate comparison between mining and non-mining areas and exploit variation of fiscal outcomes in regional treasuries over time. The royal treasuries, which I describe in more detail below, were the main unit of administrative control of the Crown’s income and expenditures at the regional level. I compare average changes in terms of fiscal capacity and tax revenue from trade before and after the creation of the Tribunal in mining treasuries to changes in non-mining treasuries. Specifically, I estimate

$$y_{it} = \beta \textit{Tribunal}_{it} + \delta X_{it} + \lambda_t \times \ln(\textit{Initial Revenue}_{i\ 1714}) + \lambda_t + \gamma_i + \varepsilon_{it}, \quad (1)$$

where  $\textit{Tribunal}_{it}$  is an indicator for the Mining Tribunal that takes a value of one starting in 1777 for mining treasuries and is zero otherwise;  $X_{i,t}$  is a vector of nearby-treasury indicators that take a value of one for affected (existing) treasuries after a new royal treasury is opened nearby, and zero otherwise (see table A.2 in the appendix for details of the assignment of

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<sup>15</sup>Figure A.2 in the appendix presents the trend in terms of regional treasury averages, and reveals a similar pattern. The dip in civil expenditures in the late 1780s might be explained by conflict between elite groups within the Tribunal itself. In the 1786 election, a group of merchants was appointed to lead the corporation, which could have been perceived as undermining its political goal of constraining mining tax policy, and may have induced mine owners to resist fiscal capacity expansion again. The definitive consolidation of mine owners in the Tribunal’s leadership in the 1793 election, as well as the established supremacy of the Tribunal over the *Audiencia* and the Viceroy may have then led to renewed expansion of fiscal capacity investments (Brading 1973; Stein and Stein 2003).

<sup>16</sup>The transition to the direct administration of sales taxes happened uniformly in Mexico, and so one possible alternative explanation to the sharp jump in the right panel of figure 4 is that the pre-1777 rates of tax farming in mining areas was much lower than in non-mining ones. Table E.1 in the appendix compares the rate of customs houses — in charge of the sales tax — that were directly administered in 1775 between mining and non-mining treasuries (the match between customs houses and treasuries is detailed in table E.2.) I find no statistically discernible difference; if anything, direct administration was more prevalent in mining areas.

nearby treasuries);<sup>17</sup>  $\ln(\text{Initial Revenue}_{i, 1714})$  is the time-invariant revenue at the beginning of the Bourbon period in each treasury (or on the first year of existence of the treasury, whichever comes first) interacted with the year fixed effects  $\lambda_t$ ;  $\gamma_i$  are treasury fixed effects; and  $\varepsilon_{it}$  is an error term, which is assumed to be independent across treasuries but allowed to be correlated by treasury over time. The outcome  $y_{it}$  is a treasury-year level measure of fiscal capacity or tax revenue from (non-mining) trade and agricultural production.

The parameter  $\beta$  will correspond to the average treatment effect of the Mining Tribunal on the outcome  $y$  in the absence of spillovers and when  $E(\varepsilon_{it}|T_{it}, \lambda_t, \gamma_i) = 0$  (with exogenous controls). This last assumption implies parallel trends between the groups: treated mining treasuries should have to keep the same difference to control non-mining treasuries had the Tribunal not been created.

I also estimate a variation of equation (1) that simultaneously allows to assess violations to the parallel trends assumption and to more flexibly estimate dynamic effects of the Tribunal over time (Autor 2003). The modified equation is

$$\begin{aligned}
 y_{it} = & \beta_n T_{i, t+n} + \dots + \beta_1 T_{i, t+1} + \beta_0 T_{it} \\
 & + \beta_{-1} T_{i, t-1} + \dots + \beta_{-n-1} T_{i, t-n-1} + \beta_{-n} \text{Tribunal}_{i, t-n} \\
 & + \delta X_{it} + \lambda_t \times \ln(\text{Initial Revenue}_{i, 1714}) + \lambda_t + \gamma_i + \varepsilon_{it}, \quad (2)
 \end{aligned}$$

where  $T_{it}$  is a switching indicator that takes a value of one only in the year of the creation of the Tribunal and zero otherwise;  $t_{+n} - t_{-n}$  are the leads and lags of the switching indicator of  $n$ th order; I include four leads and three lags (i.e,  $n = 4$ ). Finally,  $\text{Tribunal}_{i, t-n}$  is an indicator equal to one for mining treasuries in every year beginning in the fourth year after the Tribunal's creation.

Estimated lead coefficients in equation (2) that are different from zero would indicate a violation of the parallel trends assumption in the pre-Tribunal period, casting doubt about its validity for the post-Tribunal period (when the assumption is untestable). On the other hand, the lagged coefficients enable a more detailed characterization of the dynamic effects of the Tribunal for the next few years after its creation. For example,  $\beta_{-1}$  indicates the effect of the Tribunal one year after its creation,  $\beta_{-2}$  two years after, and so on.

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<sup>17</sup>These indicators can capture changes in an established treasury's catchment area as new treasury is created. New treasuries partially take over the administration of a previously established treasury's district. For example, a Bolaños indicator takes the value of one for the observations of the nearby Guadalajara treasury (which exists throughout the period) after 1753, when the Bolaños treasury is created. The indicator is zero for all other treasury-year observations.

Finally, I also directly test for diverging trends in the outcomes between mining and non-mining areas prior to the creation of the Mining Tribunal. I estimate

$$\tilde{y}_{it} = \alpha \text{Mining}_i + \delta X_{it} + \lambda_t \times \ln(\text{Initial Revenue}_{i, 1714}) + \lambda_t + \varepsilon_{it}, \quad (3)$$

where  $\tilde{y}_{it} = y_{it} - \bar{y}_{i, t < 1777}$  is the deviation from the treasury mean in the pre-Tribunal period; and  $\text{Mining}_i$  is an indicator that takes a value of one for mining treasuries. The parallel trends assumption implies that  $\alpha = 0$ , which is directly tested in tables B.1 and B.2 (in the appendix). While there are significant *level* differences in both fiscal capacity and revenue from trade between mining and non-mining treasuries, I estimate that the difference in pre-Tribunal *trends* between these groups is very close to, and statistically indistinguishable from, zero.

## VI. Measures and Data

To assess the effect of the Mining Tribunal on fiscal capacity and revenue from sectors other than mining, I use detailed fiscal data from the Spanish royal treasuries in Mexico. These data are available yearly for each of the 17 treasuries that existed prior to the creation of the Mining Tribunal, and include disaggregated income and spending figures in nominal *pesos de ocho*. The fiscal *cartas cuentas*, kept at the time as a state secret, were compiled from more detailed accounting documents in each royal treasury, and, after revisions by fiscal authorities in Mexico City (*Tribunal de Contaduría de Cuentas*), sent to Madrid.

Economic historians have examined and debated these data in light of colonial accounting practices, particularly when used to compute aggregate series of the Crown’s net revenue (see Brading 1985, Garner 1987, Pérez Herrero 1991). I build upon these criticisms of the raw data, and rely on the revised series compiled by TePaske and Klein (1982, 1990, 1986). I amend the categorizations of income and expenditures based on the work of de Fonseca and de Urrutia (1853), Klein (1985, 1998), Pérez Herrero (1991), and Jáuregui (1999).<sup>18</sup>

The regional royal treasuries administered all the income and expenditures in their districts.<sup>19</sup>

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<sup>18</sup>Some of the problems of interpretation of the fiscal data to compute net income arise after 1786, when some new categories that are in fact revolving funds are introduced as income. Further complicating the analysis of aggregate net income, double-entry accounting was also introduced in this year, though it was quickly abandoned in 1789. However, because I present results using data prior to these dates, and focus my attention to expenditures and tax revenue from gross trade and agricultural production, these issues do not pose a major problem here.

<sup>19</sup>The one exception was the tobacco state monopoly, which operated with a parallel structure (see

Each treasury’s gross revenue was first used to fund local expenditures, and the remaining funds were sent to the central treasury in Mexico City. From there, part of the funds were transferred back to treasuries in deficit, while the rest was sent to Spain (Jáuregui 1999).

This operational structure allows me to use each treasury’s share of expenditures in civil administration as a measure of local investments in fiscal capacity.<sup>20</sup> This measure includes salaries for judicial and fiscal officials, which, besides military personnel (not included in the measure), dominated the bureaucracy at the time (Arnold 1988; Bertrand 2013). It also includes the expenditures in tax collection activities, such as materials and transportation costs.

I also use the treasuries’ tax revenue from trade and agricultural production as a measure of taxation from the sectors other than mining. Tax revenue from trade — which excludes trade in mineral production — was obtained from foreign trade charged at ports (*almojarifazgos*), especially from luxury imports from Europe and the Philippines; from sales taxes charged at the entrance of towns and in public markets to products for final sale (*alcabalas*); from liquor taxes charged also at the entrance of towns, and sometimes at production sites (*pulques*); and from agricultural tithes, collected by Church officials (*diezmos*), out of which the Crown obtained a one-ninth share. All of these required important investments in fiscal capacity to be enforced, and its effect on the mine owners’ tax burden could be effectively limited by the Tribunal, as evidenced by the numerous formal tax concessions granted to the sector.

Both of these measures aggregate individual line item taxes and expenditures into general categories, which ensures consistency over time and between treasuries. The construction of these categories is detailed in table A.3 in the appendix.

I analyze fiscal trends for the 17 treasuries in operation prior to the creation of the Mining Tribunal, and focus on a period that roughly corresponds to Carlos III’s reign, from 1758 to 1786. This period matches that of the Bourbon reforms, and allows a close examination of the Crown’s investment in capacity and its ensuing ability to raise taxes from non-mining sectors.<sup>21</sup>

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figure A.3 in the appendix.)

<sup>20</sup>That is, the amount spent in treasury  $i$  on civil administration divided by total expenditures in that treasury.

<sup>21</sup>I stop in 1786, two years prior to Carlos III’s death, given the concerns raised by economic historians with the fiscal data after this year. In the appendix, I also present results using a much longer period that spans almost the entirety of Bourbon rule in Mexico — from 1714, after the War of the Spanish Succession secured the American colonies to the new ruling Bourbon dynasty in Spain, to the beginning of the revolutionary war of Mexican independence in 1810.

Mining and non-mining treasuries should be defined by the importance of the mine-owning elite within their jurisdictions. I approximate this sectoral dominance with the relative importance of tax revenue from mining in each treasury prior to 1777, and set the threshold average mining tax revenue at 25% of the total revenue in the treasury or more. The final assignment is, however, straightforward. With the exception of Mexico City, all treasuries assigned to the non-mining (control) group collect no taxes from mining. Mexico City is included in the non-mining group because mining was not a dominant economic activity; tax revenue from mining in this treasury comes mostly from a coin-minting tax on silver freighted from all across the colony, and not extracted near the city. Table A.4 (in the appendix) details the assignment of treasuries along with basic descriptives.

## VII. Results

Did the Mining Tribunal lead to an increase in fiscal capacity investments and in tax revenue from non-mining sectors, as the aggregate trends suggest? I find strong evidence of large impacts of the Tribunal on these outcomes.

**Fiscal capacity.** Table 1 presents the estimates of the relationship between the Mining Tribunal and fiscal capacity investments, as measured by relative expenditures in civil administration and tax collection. Columns 1-4 report estimates of  $\beta$  from equation (1); these estimates indicate that the Tribunal led to a substantial increase in relative civil administration expenditures in mining treasuries. In particular, civil administration expenditures increase on average between 6 and 9 percentage points after the creation of the Tribunal in mining treasuries relative to non-mining ones. This is a large effect; it is almost as large as the within-treasury mean and standard deviation of civil administration expenditures. Taking the results from column 2, the Tribunal's estimated effect implies almost a doubling of the within-treasury average spending in civil administration.

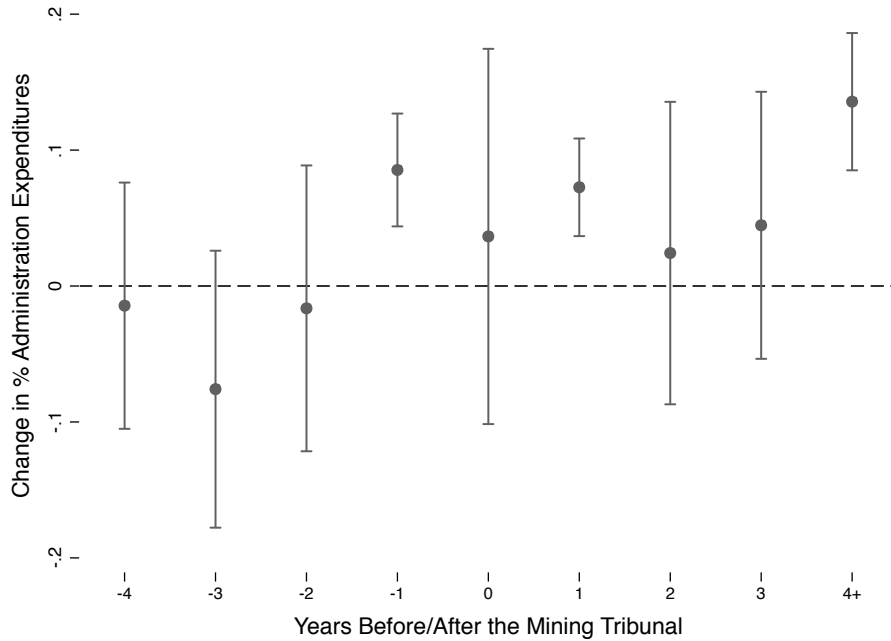
Columns 5 and 6 present estimates of equation (2), which characterizes the dynamic effect of the Tribunal on civil administration spending (figure 5 plots the estimated coefficients for column 6). Two things stand out from this estimation. First, there is no evidence of pre-Tribunal differences between mining and non-mining areas, with the exception of a one-year anticipation effect — civil administration spending increases just prior to the formal creation of the Tribunal. This is not surprising given how the organization was chartered; while the

**Table 1:** The Effect of the Mining Tribunal on Civil Administration (1759-1788)

|                                                  | Civil Administration (% of Total Expenditures) |                     |                   |                  |                    |                     |
|--------------------------------------------------|------------------------------------------------|---------------------|-------------------|------------------|--------------------|---------------------|
|                                                  | (1)                                            | (2)                 | (3)               | (4)              | (5)                | (6)                 |
| Mining Tribunal                                  | 0.069**<br>(0.029)                             | 0.090***<br>(0.019) | 0.060*<br>(0.034) | 0.059<br>(0.034) |                    |                     |
| Implied Tribunal leads and lags:                 |                                                |                     |                   |                  |                    |                     |
| Mining Tribunal <sub>t+4</sub>                   |                                                |                     |                   |                  | -0.025<br>(0.050)  | -0.014<br>(0.052)   |
| Mining Tribunal <sub>t+3</sub>                   |                                                |                     |                   |                  | -0.084<br>(0.077)  | -0.076<br>(0.058)   |
| Mining Tribunal <sub>t+2</sub>                   |                                                |                     |                   |                  | -0.066<br>(0.079)  | -0.016<br>(0.060)   |
| Mining Tribunal <sub>t+1</sub>                   |                                                |                     |                   |                  | 0.044<br>(0.036)   | 0.085***<br>(0.024) |
| Mining Tribunal <sub>t0</sub>                    |                                                |                     |                   |                  | -0.0046<br>(0.073) | 0.036<br>(0.079)    |
| Mining Tribunal <sub>t-1</sub>                   |                                                |                     |                   |                  | 0.028<br>(0.034)   | 0.073***<br>(0.021) |
| Mining Tribunal <sub>t-2</sub>                   |                                                |                     |                   |                  | -0.025<br>(0.080)  | 0.024<br>(0.064)    |
| Mining Tribunal <sub>t-3</sub>                   |                                                |                     |                   |                  | -0.0046<br>(0.074) | 0.045<br>(0.056)    |
| Mining Tribunal <sub>t-4 forward</sub>           |                                                |                     |                   |                  | 0.11**<br>(0.043)  | 0.14***<br>(0.029)  |
| Year Intercepts                                  | Yes                                            | Yes                 | Yes               | Yes              | Yes                | Yes                 |
| Treasury × Time Trend                            | No                                             | No                  | Yes               | Yes              | No                 | No                  |
| Treasury × Time Trend Squared                    | No                                             | No                  | No                | Yes              | No                 | No                  |
| Treasury Intercepts                              | Yes                                            | Yes                 | Yes               | Yes              | Yes                | Yes                 |
| Initial Revenue (log pesos)<br>× Year Intercepts | No                                             | Yes                 | Yes               | Yes              | No                 | Yes                 |
| Nearby New Treasury Control                      | No                                             | Yes                 | Yes               | Yes              | No                 | Yes                 |
| Within-Treasury Mean of DV                       | 0.11                                           | 0.11                | 0.11              | 0.11             | 0.11               | 0.11                |
| Within-Treasury SD of DV                         | 0.098                                          | 0.098               | 0.098             | 0.098            | 0.097              | 0.097               |
| R sq.                                            | 0.60                                           | 0.69                | 0.70              | 0.70             | 0.58               | 0.68                |
| Observations                                     | 445                                            | 445                 | 445               | 445              | 438                | 438                 |
| Number of Royal Treasuries                       | 17                                             | 17                  | 17                | 17               | 17                 | 17                  |

OLS estimations. See equations (1) and (2) for the econometric specifications. The unit-of-analysis is the treasury-year. Standard errors (clustered at the treasury level) in parentheses.

**Figure 5:** Dynamic Effect of Mining Tribunal on Civil Administration (1759-1788)



Estimated coefficients of equation (2), reported in the column 6 of table 1. The lines correspond to the 95% confidence intervals, based on standard errors clustered by treasury.

royal approval came in 1777, it was clear even one year before that the corporation would be formed, and only the details of its attributions were being debated. Second, the significant differences between mining and non-mining treasuries continue to be of roughly the same magnitude and slightly increase four years after the Tribunal's creation. This suggests that the Tribunal resulted in a stable increase in civil administration spending over time, further increasing only after four years.

**Tax revenue from trade.** I now turn to evaluate the effect of the Tribunal on the Crown's taxation to sectors other than mining, measured by tax revenue from trade and agricultural production. Columns 1-4 of table 2 again report estimates of  $\beta$  from equation (1); the estimates similarly indicate that the Tribunal had a large effect, here on tax revenue from trade and agricultural production in mining areas, relative to non-mining ones. These estimates suggest that, following the creation of the mine-owners' institution, mining treasuries more than tripled their tax revenue from trade and agricultural production relative to non-mining areas. The inclusion of linear and quadratic treasury-specific time trends reduce the magnitude of the coefficient and its precision, but still suggest a very large effect.



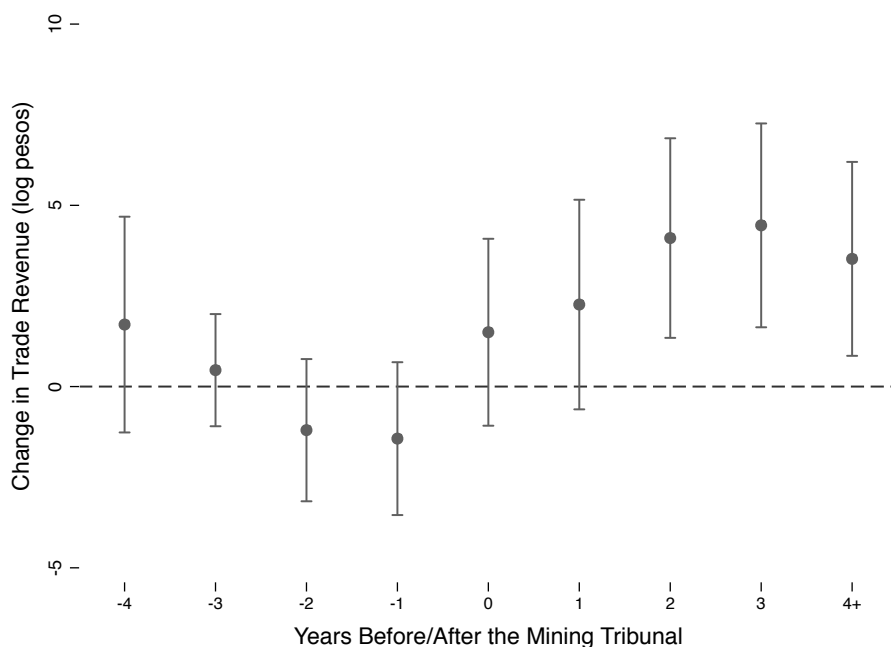
**Table 2:** The Effect of the Mining Tribunal on Tax Revenue from Trade (1759-1788)

|                                                  | Tax Revenue from Trade (log pesos) |                  |                |                |                   |                  |
|--------------------------------------------------|------------------------------------|------------------|----------------|----------------|-------------------|------------------|
|                                                  | (1)                                | (2)              | (3)            | (4)            | (5)               | (6)              |
| Mining Tribunal                                  | 3.94***<br>(1.07)                  | 3.45**<br>(1.30) | 2.83<br>(1.70) | 2.83<br>(1.70) |                   |                  |
| Implied Tribunal leads and lags:                 |                                    |                  |                |                |                   |                  |
| Mining Tribunal <sub>t+4</sub>                   |                                    |                  |                |                | 1.42<br>(1.60)    | 1.71<br>(1.70)   |
| Mining Tribunal <sub>t+3</sub>                   |                                    |                  |                |                | 0.056<br>(0.85)   | 0.45<br>(0.89)   |
| Mining Tribunal <sub>t+2</sub>                   |                                    |                  |                |                | -0.89<br>(0.76)   | -1.20<br>(1.12)  |
| Mining Tribunal <sub>t+1</sub>                   |                                    |                  |                |                | -1.11<br>(0.82)   | -1.44<br>(1.21)  |
| Mining Tribunal <sub>t0</sub>                    |                                    |                  |                |                | 1.84<br>(1.09)    | 1.50<br>(1.48)   |
| Mining Tribunal <sub>t-1</sub>                   |                                    |                  |                |                | 2.60*<br>(1.42)   | 2.26<br>(1.66)   |
| Mining Tribunal <sub>t-2</sub>                   |                                    |                  |                |                | 4.37***<br>(1.25) | 4.10**<br>(1.58) |
| Mining Tribunal <sub>t-3</sub>                   |                                    |                  |                |                | 4.70***<br>(1.24) | 4.45**<br>(1.61) |
| Mining Tribunal <sub>t-4 forward</sub>           |                                    |                  |                |                | 4.30***<br>(1.24) | 3.52**<br>(1.53) |
| Year Intercepts                                  | Yes                                | Yes              | Yes            | Yes            | Yes               | Yes              |
| Treasury × Time Trend                            | No                                 | No               | Yes            | Yes            | No                | No               |
| Treasury × Time Trend Squared                    | No                                 | No               | No             | Yes            | No                | No               |
| Treasury Intercepts                              | Yes                                | Yes              | Yes            | Yes            | Yes               | Yes              |
| Initial Revenue (log pesos)<br>× Year Intercepts | No                                 | Yes              | Yes            | Yes            | No                | Yes              |
| Nearby New Treasury Control                      | No                                 | Yes              | Yes            | Yes            | No                | Yes              |
| Within-Treasury Mean of DV                       | 8.71                               | 8.71             | 8.71           | 8.71           | 8.77              | 8.77             |
| Within-Treasury SD of DV                         | 2.18                               | 2.18             | 2.18           | 2.18           | 2.17              | 2.17             |
| R sq.                                            | 0.77                               | 0.79             | 0.83           | 0.83           | 0.78              | 0.80             |
| Observations                                     | 445                                | 445              | 445            | 445            | 438               | 438              |
| Number of Royal Treasuries                       | 17                                 | 17               | 17             | 17             | 17                | 17               |

OLS estimations. See equations (1) and (2) for the econometric specifications. The unit-of-analysis is the treasury-year. Standard errors (clustered at the treasury level) in parentheses.

The dynamic effect of the Tribunal is presented in columns 4 and 5, which report estimates of equation (2). The differences in tax revenue from trade between mining treasuries and to non-mining treasuries increase with each year after the creation of the Mining Tribunal (until the fourth year, when it seems to level). There is no indication of anticipation effects, suggesting that increases in revenue collection necessarily have to follow investments in fiscal capacity.

**Figure 6:** Dynamic Effect of Mining Tribunal on Tax Revenue from Trade (1759-1788)



Estimated coefficients of equation (2), reported in the column 6 of table 2. The lines correspond to the 95% confidence intervals, based on standard errors clustered by treasury.

**Robustness and alternative interpretations.** For both outcomes — for civil administration spending and for tax revenue from trade and agricultural production — the effect of the Mining Tribunal was large enough to be detected, despite the small number of treasuries. Moreover, the results are robust to extending the period of analysis to include the period of Bourbon rule in Mexico, from 1714 to the onset of the Mexican war of independence in 1810 (tables C.1 and C.2 in the appendix). The estimates for both outcomes are similar, though generally of slightly larger magnitude.

The results are also robust to an estimation strategy based on selection on observables (table D.1 and figure D.1 in the appendix), where non-mining treasuries are weighted to match pre-Tribunal average expenditures in civil administration (Hainmueller 2012).

I interpret the estimated effect of the Mining Tribunal on the intensity of the Crown's investments in fiscal capacity and in subsequent tax revenue from sectors other than mining as supportive of the argument outlined in section III. Nonetheless, one simple alternative interpretation is that the Tribunal could have encouraged mining activity by securing the property rights of mine owners, and along with them the attractiveness of investments in mining. With increased economic activity, the Crown could have simultaneously raised more tax revenue from trade and production — simply as a result of increased economic activity in sectors linked to mining (e.g., Sempat Assadourian 1983) — and decided to invest in capacity in those regions that promised more future revenue.

This interpretation is unsatisfactory for two reasons. First, there is no suggestion in the historical literature that mine owners were particularly concerned with the risk of expropriation. The Crown did not have the resources to take over the administration of mines, and in fact encouraged all of its subjects, regardless of race, to discover and exploit them.<sup>22</sup>

Second, the evidence does not support the implications of this alternative interpretation. While there are no direct measures of economic activity, two specific sources of revenue can provide suggestive evidence about the effect of the Tribunal on economic activity. To be useful as a measure of economic activity over time, a specific tax should not experience changes in rates or enforcement. One first decent indicator is direct taxation over mining. This tax — which, as described in section IV, did not suffer from enforcement problems and did not experience rate changes over the period — does not increase in the decade following the creation of the Tribunal (see figure 2).

A second source of revenue that did not experience changes in rate or enforcement is the Indian poll tax (*tributo*). This capitation tax was levied on all heads of household in Indian towns by local authorities and then collected annually by Crown officials. Because of its consistent rate and enforcement, this tax has been used to track demographic trends (e.g., Cook and Borah 1971), itself an informative measure of economic activity for the period. As figure F.1 (in the appendix) shows, there is no noticeable change in the (logged) *tributo* revenue between mining and non-mining areas following the creation of the Tribunal; this is confirmed by figure F.2 (in the appendix), which plots the estimates of the dynamic effects of the Tribunal on the logged revenues from *tributos*.

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<sup>22</sup>Nonetheless, the judicial functions of the Tribunal might have contributed to clarifying property rights in cases of disputes between claimants.

## VIII. Discussion

Taken together, the evidence indicates that the Mining Tribunal, an institution of limited government for the elite that enabled mine owners to easily coordinate against potential Crown abuses, led to the development of fiscal capacity in mining areas. Furthermore, as the model in section III suggests, tax revenue from important sectors other than mining, such as agriculture and trade, increased markedly as a result of the Tribunal.

While the Mining Tribunal displayed some features that are usually found in modern democratic institutions, such as a structure based on elected representatives, participation was limited to a narrow mine-owning elite. Furthermore, its ability to constrain the Crown was confined to mining tax policy. After the Mexican independence the Tribunal disappeared, and the mining industry, along with the Mexican economy, stagnated for most of the nineteenth century. For these reasons, the Tribunal’s legacy, while hard to evaluate, is likely to be found not in its institutional precedent to democratic institutions, but in the long-term consequences of the fiscal capacity development it produced across the territory.<sup>23</sup>

For Mexico, the welfare consequences of the strengthening of the Crown’s fiscal capacity are still unclear. While some scholars argue that the Crown’s exploitative fiscal policies diverted resources necessary to initiate and sustain economic growth (Coatsworth 1982), others maintain that fiscal policies actually spurred a process of mining-led growth, only interrupted by the independence movement (Doblado and Marrero 2011).<sup>24</sup>

Beyond the Mexican case, the specific mechanism developed in this paper might be useful to understand the role of a whole class of institutions — common throughout European history and in contemporary fiscal autocracies — in the development of fiscal capacity. In France, for instance, “[t]he institutions of corporate society persisted and even expanded during the Old Regime because they provided an effective method for the Crown to make credible commitments to uphold its financial obligations” (Root 1989, p. 243). The argument developed here, as well as the empirical evidence from colonial Mexico, suggest that this was a solution that absolute monarchs found not only in finance, but also in their attempts to develop fiscal capacity.<sup>25</sup>

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<sup>23</sup>Acemoglu, Garcia-Jimeno and Robinson (2014), for instance, find a positive association between a colonial measure of state capacity and present-day economic development in Colombia.

<sup>24</sup>Challú (2010) shows that the average heights of military recruits born during the Bourbon period declined, and that the gaps in height between socioeconomic groups increased.

<sup>25</sup>Though colonial corporations, such as the Mining Tribunal itself and the Merchant’s *Consulado de Comercio*, were also a major source of credit for the Spanish Crown, particularly during times of war (see

This argument not only helps to establish the role of corporations in absolute monarchies of early modern Europe, but may also provide a rationale for the proliferation and attributions of medieval parliaments earlier in the continent's history. Stasavage (2010), in his study of European representative assemblies, argues that the geographic size of polities determined the legislative powers of these bodies. In small city-states, parliaments held not only consultative and taxation powers, but also spending ones; in large territorial states, however, the costs of communication made it unfeasible for assemblies to actively intervene in spending decisions, and thus tended to limit their activities to only approving taxes.

The theory proposed in this paper can also help rationalize the pattern of assembly attributions documented by Stasavage. If the price that rulers had to pay to enhance their credibility with elite groups and develop the capacity to tax was to allow the formation of assemblies, they would have sought to give up as little power as possible. In compact polities, where the elite's ability to coordinate was already high and raising additional revenue likely involved taxing the elite's resources directly, the ruler would have had no alternative but to bring them in as partners in expenditure decisions. In larger territorial states, however, where non-elite groups could also be taxed, and the elite faced higher coordination costs due to their geographic dispersion, allowing them to organize to keep tax policy in check might have been sufficient to enable the initial establishment of a fiscal apparatus.

## **IX. Conclusion**

In this paper, I argue that institutions of limited government that constrain rulers' taxation policies can lead to the development of fiscal capacity under certain conditions. When powerful local elite groups face high coordination costs that make it impossible for them to stop a ruler from taxing them, they will resist the ruler's investments in fiscal capacity. If they are allowed to coordinate, however, they no longer have a reason to fear the development of a more fiscally capable state, since they can constrain the ruler's taxation policies. Rulers, in turn, will decide to launch costly investments in fiscal capacity, even when constrained by the elite, if they expect to extract revenue from non-elite sectors of society.

I evaluate these ideas in Bourbon Mexico, where the geographically dispersed mine-owning elite was allowed to organize in a corporation, the Mining Tribunal. This institution enabled the coordination of the mining elite, and eliminated their incentives to resist the fiscal reforms implemented by the Crown. Using detailed fiscal data from regional treasuries, I compare

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Marichal 2007).

mining areas with non-mining areas before and after the creation of the Tribunal. I find strong supportive evidence for the theory. The intensity of investments in fiscal capacity, measured as civil administration and tax collection as a proportion of total expenditures, doubles on average in mining areas relative to non-mining ones following the creation of the Tribunal. Tax revenue from (non-mining) trade and agricultural production also increases in mining areas as a result of the creation of the mine owners' corporation.

Empirically, the quasi-experimental design in this paper improves upon existing evidence. Theoretically, this paper also contributes to our understanding of the precise mechanisms that connect institutions of limited government and the development of states' ability to tax. While granting the rights to oversee spending might foster the creation of a strong fiscal state through a fiscal contract, sometimes limiting rulers' tax policy can be enough to enable fiscal capacity development.

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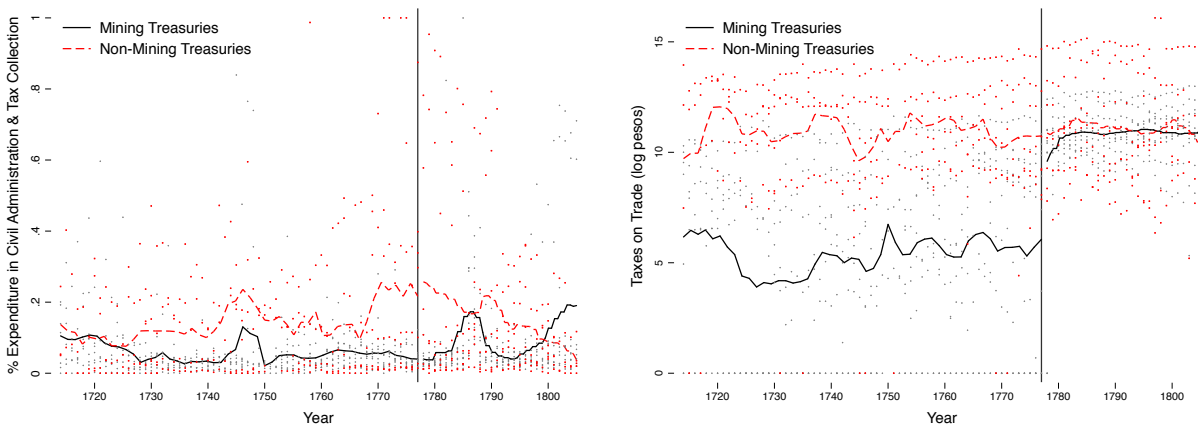
## A. Descriptives

**Figure A.1:** Sales Tax Revenue: *Alcabalas* and *Pulques*



Note: Five-year moving yearly averages before and after the creation of the Mining Tribunal in 1777.

**Figure A.2:** Civil Administration and Tax Revenue from Trade in Royal Treasuries Before and After the Mining Tribunal



Note: Five-year moving yearly averages before and after the creation of the Mining Tribunal in 1777.

**Table A.1:** Loans Raised in Mexico to Finance Wars of the Spanish Crown

| Year      | Loans administered by<br>the Mining Tribunal | Other loans |
|-----------|----------------------------------------------|-------------|
| 1781-1782 | -                                            | 1,655,415   |
| 1782      | 1,000,000                                    | 1,000,000   |
| 1783      | -                                            | 523,376     |
| 1786      | -                                            | 150,000     |
| 1790      | -                                            | 1,000,000   |
| 1793      | 1,100,000                                    | 2,559,000   |
| 1794      | 1,000,000                                    | 1,000,000   |
| 1794-1802 | 3,700,000                                    | 3,100,000   |
| 1798      | -                                            | 496,366     |
| Total     | 6,800,000                                    | 11,484,157  |

Note: Other loans include those administered by Royal Treasuries or the Merchant Guilds.

Source: Marichal (2007).

**Table A.2:** Royal Treasury Creation Dates

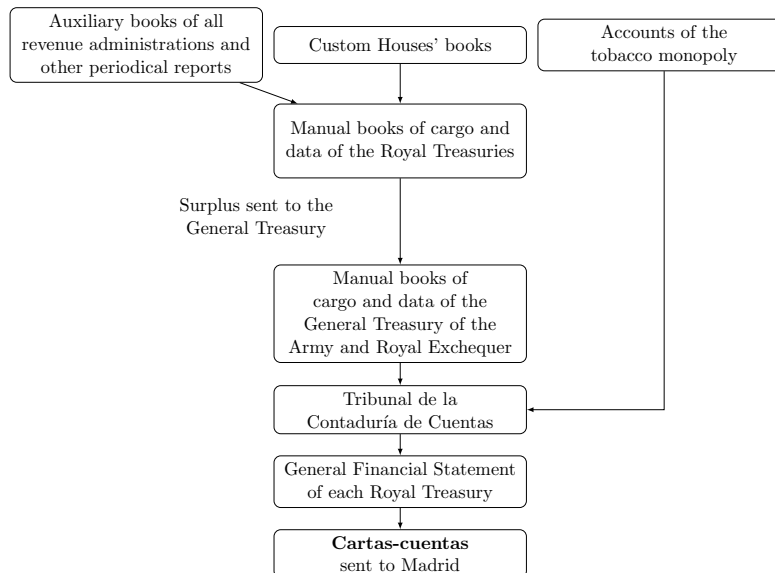
| Royal Treasury                                                                                                                      | Date of Creation | Affected Treasuries                       |
|-------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------|
| Mexico City, Veracruz, Mérida,<br>Guadalajara, Zacatecas, Acapulco,<br>Durango, San Luis Potosí,<br>Guanajuato, Pachuca, Sombrerete | Before 1714      | .                                         |
| Campeche                                                                                                                            | 1716             | .                                         |
| Tabasco                                                                                                                             | 1728             | Campeche                                  |
| Zimapan                                                                                                                             | 1729             | Pachuca                                   |
| Bolaños                                                                                                                             | 1753             | Guadalajara                               |
| Los Alamos/Rosario                                                                                                                  | 1770             | Durango                                   |
| Presidio del Carmen                                                                                                                 | 1774             | Campeche, Tabasco                         |
| Arispe                                                                                                                              | 1781             | Los Alamos/Rosario                        |
| Chihuahua                                                                                                                           | 1785             | Sombrerete, Durango                       |
| Michoacán                                                                                                                           | 1788             | Mexico City, Guadalajara                  |
| Puebla                                                                                                                              | 1789             | Mexico City, Veracruz,<br>Pachuca         |
| Oaxaca                                                                                                                              | 1790             | Mexico City                               |
| Saltillo                                                                                                                            | 1794             | San Luis Potosí,<br>Sombrerete, Zacatecas |

Source: TePaske and Klein (1986). Affected treasuries are defined by geographic proximity and the existing road system in 1790, from Gerhard (1993) and Díaz-Cayeros and Jha (2015).

**Table A.3:** Income and Expenditure Categories

|                                                    | Included Fiscal Categories                                                                                                                                                              | Excluded Fiscal Categories                                                                                                                                                | Categories in TePaske and Klein (1982, 1990)                                                                                                                                                                 |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Income</b>                                      |                                                                                                                                                                                         |                                                                                                                                                                           |                                                                                                                                                                                                              |
| Tax Revenue from Trade and Agricultural Production | - <i>Alcabalas</i> (sales taxes)<br>- <i>Almojarifazgos</i> (foreign trade taxes)<br>- <i>Pulques</i> (liquor tax)<br>- <i>Diezmos</i> (agricultural tithes)                            | -Indian poll tax<br>-Mining taxes<br>-Transfers<br>-Donations<br>-Debt<br>-Wage taxes to Crown officials<br>-Extraordinary income<br>-Revolving funds<br>-Jesuit property | <i>Ramos</i> : 2 2, 216, 2, 226, 1012, 1010, 2 9, 3 3, 21.                                                                                                                                                   |
| Mining-Production Tax Revenue                      |                                                                                                                                                                                         |                                                                                                                                                                           | <i>Ramos</i> : 1 1, 1, 1 7.                                                                                                                                                                                  |
| <i>Azogue</i> (mercury) Revenue                    |                                                                                                                                                                                         |                                                                                                                                                                           | <i>Ramos</i> : 1211.                                                                                                                                                                                         |
| <b>Expenditures</b>                                |                                                                                                                                                                                         |                                                                                                                                                                           |                                                                                                                                                                                                              |
| Civil Administration and Tax Collection            | -Administrative wages<br>-General tax collection expenditures<br>-Exp. in collecting mining taxes<br>-Liquor taxes<br>-Sales taxes<br>-Exp. in collecting wage taxes to Crown officials | -War expenditures<br>-Transfers<br>-Public works<br>-Hospitals<br>-Exp. in collecting extraordinary taxes<br>-Exp. of state monopolies<br>-Debt service<br>-Pensions      | <i>Ramos</i> : 2321, 23 2, 23, 34, 3133, 3625, 36, 2428, 39, 2, 2127, 21, 2 2, 23, 2123, 3 3. Expenses in <i>ramo</i> 34 that correspond to transfers, public works, debt, and revolving funds are excluded. |

**Figure A.3:** Structure of Fiscal Data



Source: Jáuregui (1999).

**Table A.4:** Descriptives by Royal Treasury

| Treasury    | Mining Treasury | Avg. % Mining Tax Revenue 1758-76 | Initial Total Revenue (log pesos) | Pre Tribunal Avg. % Civil Adm. Exp. 1758-76 | Post Tribunal Avg. % Civil Adm. Exp. 1777-86 | Pre Tribunal Avg. Revenue from Trade 1758-76 (log pesos) | Post Tribunal Avg. Revenue from Trade 1777-86 (log pesos) |
|-------------|-----------------|-----------------------------------|-----------------------------------|---------------------------------------------|----------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|
| Acapulco    | No              | 0.00                              | 12.3                              | 0.11                                        | 0.06                                         | 09.2                                                     | 11.2                                                      |
| Campeche    | No              | 0.00                              | 10.6                              | 0.01                                        | 0.06                                         | 10.4                                                     | 11.0                                                      |
| Merida      | No              | 0.00                              | 10.1                              | 0.34                                        | 0.20                                         | 09.1                                                     | 09.6                                                      |
| Mexico City | No              | 0.23                              | 14.8                              | 0.12                                        | 0.07                                         | 14.3                                                     | 14.8                                                      |
| Carmen      | No              | 0.00                              | 11.5                              | 0.65                                        | 0.65                                         | 06.6                                                     | 08.1                                                      |
| Tabasco     | No              | 0.00                              | 08.3                              | 0.62                                        | 0.50                                         | 08.8                                                     | 09.0                                                      |
| Veracruz    | No              | 0.00                              | 14.5                              | 0.01                                        | 0.02                                         | 12.7                                                     | 13.6                                                      |
| Bolaños     | Yes             | 0.38                              | 13.2                              | 0.05                                        | 0.08                                         | 08.3                                                     | 10.2                                                      |
| Durango     | Yes             | 0.54                              | 11.9                              | 0.05                                        | 0.09                                         | 08.9                                                     | 10.6                                                      |
| Guadalajara | Yes             | 0.35                              | 12.3                              | 0.06                                        | 0.10                                         | 11.3                                                     | 12.5                                                      |
| Guanajuato  | Yes             | 0.54                              | 12.5                              | 0.02                                        | 0.03                                         | 03.0                                                     | 11.8                                                      |
| Pachuca     | Yes             | 0.51                              | 11.9                              | 0.04                                        | 0.06                                         | 01.2                                                     | 10.3                                                      |
| Rosario     | Yes             | 0.48                              | 11.2                              | 0.09                                        | 0.05                                         | 01.7                                                     | 08.1                                                      |
| San Luis    |                 |                                   |                                   |                                             |                                              |                                                          |                                                           |
| Potosi      | Yes             | 0.47                              | 11.7                              | 0.05                                        | 0.11                                         | 06.9                                                     | 11.1                                                      |
| Sombrete    | Yes             | 0.67                              | 10.8                              | 0.10                                        | 0.13                                         | 03.4                                                     | 09.3                                                      |
| Zacatecas   | Yes             | 0.63                              | 13.1                              | 0.05                                        | 0.07                                         | 09.1                                                     | 10.9                                                      |
| Zimapan     | Yes             | 0.87                              | 10.4                              | 0.05                                        | 0.05                                         | 00.0                                                     | 07.7                                                      |

Note: *Initial Total Revenue* corresponds to 1714 or the first year with data. Tax revenue from mining in Mexico City includes the minting for all the colony and thus exaggerates the relative importance of mining in that treasury.

## B. Parallel Trends

**Table B.1:** Parallel Trends in Civil Administration and Tax Revenue from Trade (1759-1776)

|                                                  | Civil Adm.<br>(% of Total<br>Expenditures) | Civil Administration<br>Deviations from Mean<br>(% of Total Expenditures) |                      | Trade Taxes<br>(log pesos) | Trade Taxes<br>Deviations from Mean<br>(log pesos) |                   |
|--------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------|----------------------|----------------------------|----------------------------------------------------|-------------------|
|                                                  | (1)                                        | (2)                                                                       | (3)                  | (4)                        | (5)                                                | (6)               |
| Mining District                                  | -0.12<br>(0.074)                           | 0.00025<br>(0.00093)                                                      | -0.00076<br>(0.0018) | -5.25***<br>(1.53)         | -0.0099<br>(0.017)                                 | -0.038<br>(0.053) |
| Year Intercepts                                  | No                                         | Yes                                                                       | Yes                  | No                         | Yes                                                | Yes               |
| Treasury Intercepts                              | No                                         | No                                                                        | No                   | No                         | No                                                 | No                |
| Initial Revenue (log pesos)<br>× Year Intercepts | No                                         | No                                                                        | Yes                  | No                         | No                                                 | Yes               |
| Nearby New Treasury Control                      | No                                         | No                                                                        | Yes                  | No                         | No                                                 | Yes               |
| Mean of DV                                       | 0.10                                       | 4.9e-10                                                                   | 4.9e-10              | 7.60                       | 0.000000066                                        | 0.000000066       |
| SD of DV                                         | 0.17                                       | 0.098                                                                     | 0.098                | 4.51                       | 1.83                                               | 1.83              |
| R sq.                                            | 0.13                                       | 0.068                                                                     | 0.31                 | 0.32                       | 0.056                                              | 0.071             |
| Observations                                     | 279                                        | 279                                                                       | 279                  | 279                        | 279                                                | 279               |
| Number of Royal Treasuries                       | 17                                         | 17                                                                        | 17                   | 17                         | 17                                                 | 17                |

OLS estimations. See equation (3) for the econometric specification. The unit-of-analysis is the treasury-year. Standard errors (clustered at the treasury level) in parentheses.

**Table B.2:** Parallel Trends in Civil Administration and Tax Revenue from Trade (1714-1776)

|                                                  | Civil Adm.<br>(% of Total<br>Expenditures) | Civil Administration<br>Deviations from Mean<br>(% of Total Expenditures) |                     | Trade Taxes<br>(log pesos) | Trade Taxes<br>Deviations from Mean<br>(log pesos) |                  |
|--------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------|---------------------|----------------------------|----------------------------------------------------|------------------|
|                                                  | (1)                                        | (2)                                                                       | (3)                 | (4)                        | (5)                                                | (6)              |
| Mining District                                  | -0.090<br>(0.055)                          | 0.00026<br>(0.0015)                                                       | -0.0017<br>(0.0036) | -5.56***<br>(1.51)         | -0.022<br>(0.025)                                  | -0.10<br>(0.083) |
| Year Intercepts                                  | No                                         | Yes                                                                       | Yes                 | No                         | Yes                                                | Yes              |
| Treasury Intercepts                              | No                                         | No                                                                        | No                  | No                         | No                                                 | No               |
| Initial Revenue (log pesos)<br>× Year Intercepts | No                                         | No                                                                        | Yes                 | No                         | No                                                 | Yes              |
| Nearby New Treasury Control                      | No                                         | No                                                                        | Yes                 | No                         | No                                                 | Yes              |
| Mean of DV                                       | 0.091                                      | -2.2e-10                                                                  | -2.2e-10            | 7.36                       | 0.000000024                                        | 0.000000024      |
| SD of DV                                         | 0.15                                       | 0.100                                                                     | 0.100               | 4.57                       | 2.10                                               | 2.10             |
| R sq.                                            | 0.089                                      | 0.100                                                                     | 0.24                | 0.34                       | 0.091                                              | 0.12             |
| Observations                                     | 784                                        | 784                                                                       | 784                 | 785                        | 785                                                | 785              |
| Number of Royal Treasuries                       | 17                                         | 17                                                                        | 17                  | 17                         | 17                                                 | 17               |

OLS estimations. See equation (3) for the econometric specification. The unit-of-analysis is the treasury-year. Standard errors (clustered at the treasury level) in parentheses.

## C. Alternative Period

**Table C.1:** The Effect of the Mining Tribunal on Civil Administration Bourbon Period (1714-1810)

|                                                  | Civil Administration (% of Total Expenditures) |                     |                   |                  |                   |                     |
|--------------------------------------------------|------------------------------------------------|---------------------|-------------------|------------------|-------------------|---------------------|
|                                                  | (1)                                            | (2)                 | (3)               | (4)              | (5)               | (6)                 |
| Mining Tribunal                                  | 0.093**<br>(0.043)                             | 0.071***<br>(0.024) | 0.080*<br>(0.040) | 0.017<br>(0.051) |                   |                     |
| Implied Tribunal leads and lags:                 |                                                |                     |                   |                  |                   |                     |
| Mining Tribunal <sub>t+4</sub>                   |                                                |                     |                   |                  | -0.028<br>(0.054) | -0.038<br>(0.055)   |
| Mining Tribunal <sub>t+3</sub>                   |                                                |                     |                   |                  | -0.096<br>(0.083) | -0.10*<br>(0.054)   |
| Mining Tribunal <sub>t+2</sub>                   |                                                |                     |                   |                  | -0.078<br>(0.084) | -0.046<br>(0.064)   |
| Mining Tribunal <sub>t+1</sub>                   |                                                |                     |                   |                  | 0.032<br>(0.031)  | 0.056<br>(0.035)    |
| Mining Tribunal <sub>t0</sub>                    |                                                |                     |                   |                  | -0.017<br>(0.075) | 0.0067<br>(0.086)   |
| Mining Tribunal <sub>t-1</sub>                   |                                                |                     |                   |                  | 0.016<br>(0.031)  | 0.043*<br>(0.022)   |
| Mining Tribunal <sub>t-2</sub>                   |                                                |                     |                   |                  | -0.074<br>(0.090) | -0.047<br>(0.077)   |
| Mining Tribunal <sub>t-3</sub>                   |                                                |                     |                   |                  | -0.053<br>(0.081) | -0.027<br>(0.066)   |
| Mining Tribunal <sub>t-4 forward</sub>           |                                                |                     |                   |                  | 0.11**<br>(0.047) | 0.099***<br>(0.034) |
| Year Intercepts                                  | Yes                                            | Yes                 | Yes               | Yes              | Yes               | Yes                 |
| Treasury × Time Trend                            | No                                             | No                  | Yes               | Yes              | No                | No                  |
| Treasury × Time Trend Squared                    | No                                             | No                  | No                | Yes              | No                | No                  |
| Treasury Intercepts                              | Yes                                            | Yes                 | Yes               | Yes              | Yes               | Yes                 |
| Initial Revenue (log pesos)<br>× Year Intercepts | No                                             | Yes                 | Yes               | Yes              | No                | Yes                 |
| Nearby New Treasury Control                      | No                                             | Yes                 | Yes               | Yes              | No                | Yes                 |
| Within-Treasury Mean of DV                       | 0.10                                           | 0.10                | 0.10              | 0.10             | 0.10              | 0.10                |
| Within-Treasury SD of DV                         | 0.11                                           | 0.11                | 0.11              | 0.11             | 0.11              | 0.11                |
| R sq.                                            | 0.39                                           | 0.52                | 0.57              | 0.66             | 0.44              | 0.56                |
| Observations                                     | 1283                                           | 1283                | 1283              | 1283             | 1222              | 1222                |
| Number of Royal Treasuries                       | 17                                             | 17                  | 17                | 17               | 17                | 17                  |

OLS estimations. See equations (1) and (2) for the econometric specifications. The unit-of-analysis is the treasury-year. Standard errors (clustered at the treasury level) in parentheses.



**Table C.2:** The Effect of the Mining Tribunal on Tax Revenue from Trade Bourbon Period (1714-1810)

|                                                  | Tax Revenue from Trade (log pesos) |                   |                  |                 |                   |                   |
|--------------------------------------------------|------------------------------------|-------------------|------------------|-----------------|-------------------|-------------------|
|                                                  | (1)                                | (2)               | (3)              | (4)             | (5)               | (6)               |
| Mining Tribunal                                  | 4.42***<br>(1.04)                  | 4.82***<br>(1.12) | 3.26**<br>(1.34) | 3.20*<br>(1.61) |                   |                   |
| Implied Tribunal leads and lags:                 |                                    |                   |                  |                 |                   |                   |
| Mining Tribunal <sub>t+4</sub>                   |                                    |                   |                  |                 | 1.76<br>(1.73)    | 2.54<br>(1.78)    |
| Mining Tribunal <sub>t+3</sub>                   |                                    |                   |                  |                 | 0.15<br>(1.02)    | 1.08<br>(0.93)    |
| Mining Tribunal <sub>t+2</sub>                   |                                    |                   |                  |                 | -0.80<br>(0.91)   | -0.55<br>(1.07)   |
| Mining Tribunal <sub>t+1</sub>                   |                                    |                   |                  |                 | -1.02<br>(1.02)   | -0.78<br>(1.20)   |
| Mining Tribunal <sub>t0</sub>                    |                                    |                   |                  |                 | 1.93<br>(1.28)    | 2.15<br>(1.44)    |
| Mining Tribunal <sub>t-1</sub>                   |                                    |                   |                  |                 | 2.69*<br>(1.49)   | 2.92*<br>(1.52)   |
| Mining Tribunal <sub>t-2</sub>                   |                                    |                   |                  |                 | 4.41***<br>(1.16) | 4.78***<br>(1.32) |
| Mining Tribunal <sub>t-3</sub>                   |                                    |                   |                  |                 | 4.75***<br>(1.14) | 5.13***<br>(1.36) |
| Mining Tribunal <sub>t-4 forward</sub>           |                                    |                   |                  |                 | 4.62***<br>(1.10) | 5.32***<br>(1.16) |
| Year Intercepts                                  | Yes                                | Yes               | Yes              | Yes             | Yes               | Yes               |
| Treasury × Time Trend                            | No                                 | No                | Yes              | Yes             | No                | No                |
| Treasury × Time Trend Squared                    | No                                 | No                | No               | Yes             | No                | No                |
| Caja Intercepts                                  | Yes                                | Yes               | Yes              | Yes             | Yes               | Yes               |
| Initial Revenue (log pesos)<br>× Year Intercepts | No                                 | Yes               | Yes              | Yes             | No                | Yes               |
| Nearby New Treasury Control                      | No                                 | Yes               | Yes              | Yes             | No                | Yes               |
| Within-Treasury Mean of DV                       | 8.73                               | 8.73              | 8.73             | 8.73            | 8.74              | 8.74              |
| Within-Treasury SD of DV                         | 2.53                               | 2.53              | 2.53             | 2.53            | 2.49              | 2.49              |
| R sq.                                            | 0.76                               | 0.81              | 0.83             | 0.84            | 0.77              | 0.81              |
| Observations                                     | 1286                               | 1286              | 1286             | 1286            | 1224              | 1224              |
| Number of Royal Treasuries                       | 17                                 | 17                | 17               | 17              | 17                | 17                |

OLS estimations. See equations (1) and (2) for the econometric specifications. The unit-of-analysis is the treasury-year. Standard errors (clustered at the treasury level) in parentheses.

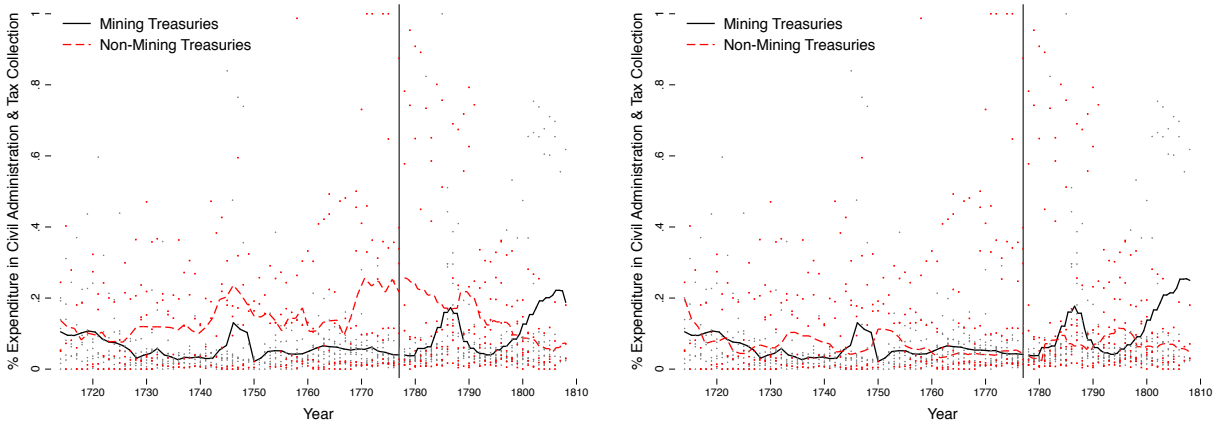
## D. Selection on Observables

**Table D.1:** The Effect of the Mining Tribunal on Civil Administration (1714-1810)  
Entropy Balance Weights

|                                                  | Civil Adm.<br>(% of Total Exp.) |                     | Trade Taxes<br>(log pesos) |                  |
|--------------------------------------------------|---------------------------------|---------------------|----------------------------|------------------|
|                                                  | (1)                             | (2)                 | (3)                        | (4)              |
| Mining Tribunal                                  | 0.033*<br>(0.018)               | 0.081***<br>(0.024) | 2.60<br>(1.73)             | 3.86**<br>(1.64) |
| Year Intercepts                                  | Yes                             | Yes                 | Yes                        | Yes              |
| Treasury Intercepts                              | Yes                             | Yes                 | Yes                        | Yes              |
| Initial Revenue (log pesos)<br>× Year Intercepts | Yes                             | Yes                 | Yes                        | Yes              |
| Nearby New Treasury Control                      | Yes                             | Yes                 | Yes                        | Yes              |
| Within-Treasury Mean of DV                       | 0.10                            | 0.10                | 8.86                       | 8.77             |
| Within-Treasury SD of DV                         | 0.095                           | 0.11                | 2.10                       | 2.49             |
| R sq.                                            | 0.44                            | 0.41                | 0.86                       | 0.88             |
| Observations                                     | 417                             | 1217                | 417                        | 1220             |
| Number of Royal Treasuries                       | 15                              | 15                  | 15                         | 15               |

OLS estimations with entropy weights. Weights for non-mining treasuries are estimated to match the means of the outcome (% of exp. in civil administration) in 1756, 1764, 1772, and 1775. These years were selected in years with complete observations for the largest number of treasuries. See equation (1) for the econometric specification. The unit-of-analysis is the treasury-year. Standard errors (clustered at the treasury level) in parentheses.

**Figure D.1:** Expenditure in Civil Administration Before and After the Mining Tribunal  
Entropy Balance Weights



Note: Five-year moving yearly averages before and after the creation of the Mining Tribunal in 1777. The left panel presents the original data. In the right panel each non-mining treasury is re-weighted with entropy weights, estimated to match the means of the outcome (% of exp. in civil administration) in 1756, 1764, 1772, and 1775. These years were selected in years with complete observations for the largest number of treasuries.

## E. Direct Administration of the Sales Tax Before 1777

**Table E.1:** Direct Administration of Custom Houses by the Crown  
in Mining and Non-Mining Treasuries by 1775

|                      | Non-Mining Treasuries (mean) | Mining Treasuries (mean) | Difference | Std Error | p-value |
|----------------------|------------------------------|--------------------------|------------|-----------|---------|
| Aduanas (Direct Adm) | 0.139                        | 0.198                    | -0.0589    | 0.137     | 0.676   |
| Revenue (Direct Adm) | 0.103                        | 0.224                    | -0.121     | 0.144     | 0.420   |
| Number of Treasuries | 4                            | 9                        |            |           |         |

Note: Customs houses data from Sánchez Santiró (2001). No customs data exists for Sonora and Sinaloa, and only Tabasco appears for all of the Yucatan. I matched customs houses and Royal Treasuries based on geographic proximity and the existing road system in 1790, from Gerhard (1993) and Díaz-Cayeros and Jha (2015).

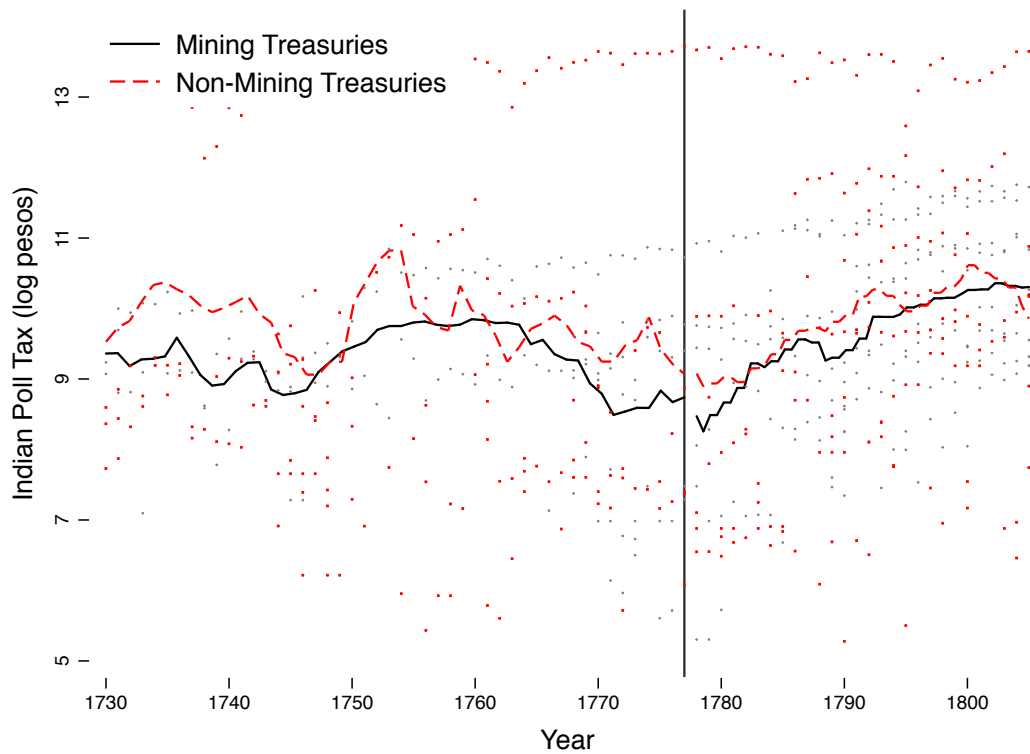
**Table E.2:** Customs Houses and Royal Treasuries by 1775

| Royal Treasury  | Customs House        | Direct Administration | Revenue |
|-----------------|----------------------|-----------------------|---------|
| Acapulco        | Acapulco             | No                    | 3125    |
| Acapulco        | Xicayan              | No                    | 2000    |
| Acapulco        | Zacatula             | No                    | 1475    |
| Acapulco        | Zumpango y Tistla    | No                    | 850     |
| Acapulco        | Tetela del Río       | No                    | 650     |
| Acapulco        | Chilapa              | No                    | 565     |
| Bolafios        | Bolafios             | Yes                   | 10485   |
| Durango         | Chihuahua            | Yes                   | 15496   |
| Durango         | Durango              | No                    | 8000    |
| Durango         | Nombre de Dios       | No                    | 1715    |
| Durango         | Parras               | No                    | 1100    |
| Durango         | Coahuila             | No                    | 400     |
| Guadalajara     | Guadalajara          | No                    | 63000   |
| Guadalajara     | Zamora y agregados   | No                    | 5625    |
| Guadalajara     | Sayula               | No                    | 3100    |
| Guadalajara     | Colima               | No                    | 3010    |
| Guadalajara     | Guachinango          | No                    | 1750    |
| Guanajuato      | Guanajuato           | No                    | 45500   |
| Guanajuato      | Querétaro            | No                    | 33600   |
| Guanajuato      | San Miguel el Grande | No                    | 12100   |
| Guanajuato      | Patzcuaro            | No                    | 9550    |
| Guanajuato      | Villa de León        | No                    | 9125    |
| Guanajuato      | Celaya               | No                    | 8300    |
| Guanajuato      | Acambaro             | No                    | 3000    |
| Guanajuato      | Salamanca            | No                    | 2850    |
| Guanajuato      | Guerécuaro           | No                    | 1000    |
| Guanajuato      | Yurirapundaro        | No                    | 800     |
| Mexico City     | Mexico City          | Yes                   | .       |
| Mexico City     | Puebla y agregados   | Yes                   | 108273  |
| Mexico City     | Oaxaca               | No                    | 76100   |
| Mexico City     | Taxco                | No                    | 22500   |
| Mexico City     | Valledolid           | No                    | 21530   |
| Mexico City     | Cuernavaca           | No                    | 15600   |
| Mexico City     | TLaxcala             | No                    | 13145   |
| Mexico City     | Tepeaca              | No                    | 9500    |
| Mexico City     | Marabatio            | No                    | 7280    |
| Mexico City     | Tehuacan             | No                    | 6930    |
| Mexico City     | Atlixco              | No                    | 6235    |
| Mexico City     | Zacualpan            | No                    | 6200    |
| Mexico City     | Izúcar               | No                    | 5832    |
| Mexico City     | Cuautla de Amilpas   | No                    | 5015    |
| Mexico City     | Chohula              | No                    | 4750    |
| Mexico City     | Huejotzingo          | No                    | 4250    |
| Mexico City     | Huaco                | No                    | 3900    |
| Mexico City     | Tepeacohula          | No                    | 3800    |
| Mexico City     | Tlalpujahua          | No                    | 3155    |
| Mexico City     | Malmalco             | No                    | 2570    |
| Mexico City     | Jonacatepec          | No                    | 2030    |
| Mexico City     | Nejapa               | Yes                   | 2000    |
| Mexico City     | Villalta             | Yes                   | 1900    |
| Mexico City     | Igualapan            | No                    | 1250    |
| Mexico City     | Teutitlán del Camino | No                    | 1010    |
| Mexico City     | Iguala               | No                    | 1000    |
| Mexico City     | Tlapa                | Yes                   | 727     |
| Mexico City     | Tochimilco           | No                    | 670     |
| Mexico City     | Tepeji de la Seda    | Yes                   | 590     |
| Mexico City     | Chautila de la Sal   | No                    | 500     |
| Mexico City     | Cutzaco de la Laguna | Yes                   | 414     |
| Mexico City     | Tenango del Valle    | Yes                   | 303     |
| Mexico City     | Mishuatlán           | Yes                   | 229     |
| Pachuca         | Pachuca              | No                    | 5799    |
| Pachuca         | Tulancingo           | Yes                   | 3235    |
| Pachuca         | Ixmiquilpan          | Yes                   | 2789    |
| Pachuca         | Apan                 | No                    | 2600    |
| Pachuca         | Zacatlán             | No                    | 1700    |
| Pachuca         | Octupan              | Yes                   | 1310    |
| Pachuca         | Acayuca              | No                    | 1125    |
| Pachuca         | Mestitlán            | No                    | 1000    |
| Pachuca         | Molango              | No                    | 617     |
| Pachuca         | Ahtalahuia           | Yes                   | 504     |
| Pachuca         | Huautla y Jahuatica  | Yes                   | 486     |
| Pachuca         | Huayacocotla         | No                    | 460     |
| Pachuca         | Cempoala             | No                    | 257     |
| San Luis Potosí | San Luis Potosí      | No                    | 12250   |
| San Luis Potosí | Sierra de Pinos      | No                    | 6055    |
| San Luis Potosí | Charcas              | No                    | 4100    |
| San Luis Potosí | Villa de Valles      | No                    | 2450    |
| San Luis Potosí | Guadalcázar          | Yes                   | 1352    |
| Sombrerete      | Sombrerete           | No                    | 5000    |
| Tabasco         | Tabasco              | No                    | 12500   |
| Veracruz        | Orizaba              | No                    | 18100   |
| Veracruz        | Córdoba              | No                    | 14000   |
| Veracruz        | Jalapa               | No                    | 11415   |
| Veracruz        | Nuevo Santander      | Yes                   | 3000    |
| Veracruz        | Tehuantepec          | No                    | 2500    |
| Veracruz        | Cosamaluapan         | No                    | 1275    |
| Veracruz        | Teusitlán            | No                    | 1100    |
| Veracruz        | Teutila              | No                    | 1000    |
| Veracruz        | Tustila y Cotastla   | No                    | 850     |
| Veracruz        | Tampico              | No                    | 655     |
| Veracruz        | Antigua Veracruz     | Yes                   | 431     |
| Veracruz        | Papantla             | Yes                   | 349     |
| Veracruz        | Songolica            | Yes                   | 284     |
| Zacatecas       | Zacatecas            | No                    | 15000   |
| Zacatecas       | Fresnillo            | No                    | 5500    |
| Zacatecas       | Reino de Nuevo León  | No                    | 1700    |
| Zacatecas       | Saltitillo           | No                    | 1535    |
| Zacatecas       | Mazapil              | No                    | 1400    |
| Zacatecas       | Jerez                | No                    | 1320    |
| Zimapan         | Zimapan              | No                    | 2005    |
| Zimapan         | Cadereita            | No                    | 914     |
| .               | Huapiapa             | No                    | 2550    |

Note: Customs houses data from Sánchez Santiró (2001). No customs data exists for Sonora and Sinaloa, and only Tabasco appears for all of the Yucatan. I matched customs houses and royal treasuries based on geographic proximity and the existing road system in 1790, from Gerhard (1993) and Díaz-Cayeros and Jha (2015).

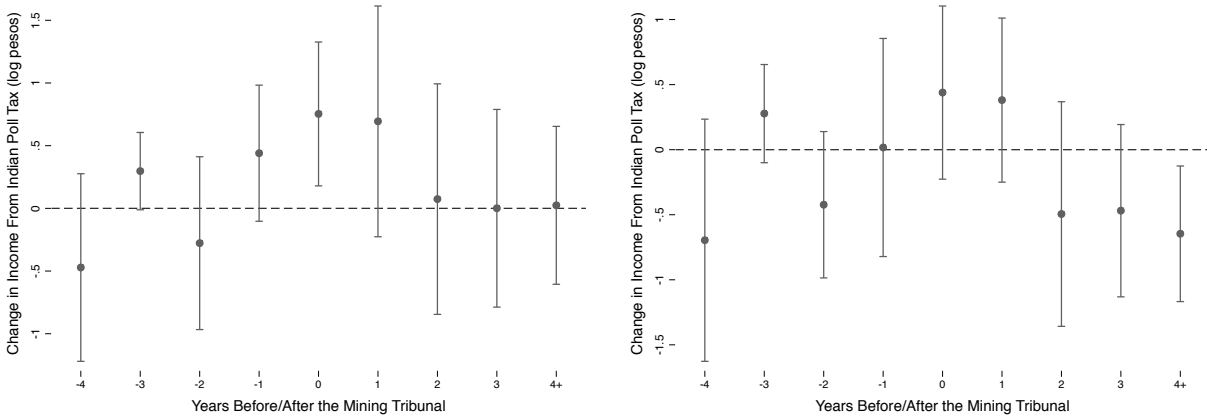
## F. Indian Poll Tax

**Figure F.1:** Revenue from the Indian Poll Tax Before and After the Mining Tribunal



Note: Five-year moving yearly averages before and after the creation of the Mining Tribunal in 1777.

**Figure F.2:** Dynamic Effect of Mining Tribunal on the Indian Poll Tax



Note: Estimated coefficients of equation (2). The lines correspond to the 95% confidence intervals, based on standard errors clustered by treasury. The left panel presents estimates using the period 1759-1788; the period used for the right panel is 1714-1810.