

The Legal Origins of Economic Development in Mexico

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Abstract

This paper examines the persistent effects of colonial legal capacity. Exploiting a spatial regression discontinuity design in Mexico, I document that regions historically exposed to more capable colonial courts exhibit higher historical and contemporary economic prosperity. In contrast to the view that empowering royally-biased judges weakened property rights, court records analyzed with NLP algorithms suggest these constrained settlers from expropriating indigenous lands. In the long-run, a feedback loop appears to have consolidated an emerging rural middle class, whose relative enfranchisement tied them less to patronage politics, encouraging public good provision and labor mobility.

Keywords: Legal capacity, property rights, economic development, colonialism, Mexico.

JEL Codes: K40, P14, O12, D73, N46.

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1 Introduction

The origins of legal institutions are a fundamental source of comparative development. In the past decades, a vast economics literature has documented that variation in common and civil law traditions transplanted through colonization to parts of the Americas, Africa, and Asia accounts for persistent economic disparities across regions (La Porta et al., 1997). However, an understudied fact is that European colonial powers often faced constraints that made the process very uneven, which created large differences in the legal capacity of courts with ambiguous long-term consequences for the security of property rights and economic performance within regions.

One salient example was the transplantation of civil law tradition. The system lacked judicial independence and relied heavily on royal control over judges, bright rules, and written laws. Consequently, empowering judges *politicized* legal adjudication, which possibly exacerbated royal expropriations and weakened property rights (Acemoglu et al., 2001; North, 1990). However, a countervailing force of increased legal capacity is that judges were better *insulated* from excessive external coercion or influence, which may have otherwise reduced legal adjudication or led to lawlessness. Such an effect constrained other expropriatory elites (ie: lords, settlers, traditional chiefs, etc.), potentially strengthening property rights (Glaeser and Shleifer, 2002).

This is a challenging topic to study because the recent empirical literature has been unable to unbundle the state, particularly legal institutions (Heldring, 2020; Dell et al., 2018; Lowes et al., 2017; Michalopoulos and Papaioannou, 2013). Ideally, one would want to study a historical episode where a civil law system was transplanted and the ruler controls courts, yet these have varying degrees of legal capacity. Also, detailed historical information tracing the workings of these institutions is typically rare, which explains why empirical evidence remains remarkably scarce.

In this paper, I make progress by examining the persistent effects of colonial legal capacity in Mexico – the only Spanish colony to possess two colonial courts (*Reales Audiencias*) with varying degrees of legal capacity. At the center, the more capable Mexico colonial court was empowered with more royal judges and law enforcement resources (i.e.: prosecutors, military escort) to primarily resolve disputes among settlers and indigenous communities. In contrast, further north, the less capable Guadalajara colonial court possessed less judges and law enforcement resources. This often made them subject to external coercion or influence, to the point that in 1574 its president

complained "there was little litigation [...] and consequently little work" (Parry, 1948; Gerhard, 1972).

Thus, I employ a spatial regression discontinuity design to compare nearby regions historically exposed to the more capable Mexico colonial court relative to those in the less capable Guadalajara colonial court, but that have since been subjected to the same national and local institutions. To evaluate the validity of my empirical strategy, I provide detailed evidence that the boundary was determined because of idiosyncratic political circumstances, unrelated to other institutional boundaries, and pre-existing differences in development, institutions, culture, or geography. Likewise, I collect rich archival information on settler and indigenous disputes from 69,966 court records spanning the whole colonial period.

After almost two centuries, I find that locations historically exposed to the Mexico colonial court exhibit higher living standards. Using microdata from the 2000 population census, estimates indicate household income is on average 20% higher. Likewise, individuals accumulate 0.7 more years of schooling, relative to a mean of 7.¹ Effects are historically very persistent, as data from historical population censuses shows that the educational differences at the boundary have been present since the end of the 19th century. Results are robust to extensive alternative specifications that modify optimal bandwidths and RD functional forms, and use other samples (including dropping Guadalajara), levels of aggregation, or falsification tests (ie: placebo boundaries).

Then, I empirically explore the theoretical mechanisms behind them. I curate court records involving settlers and indigenous communities and analyse their text using machine learning (ML) for natural language processing (NLP) algorithms. I accurately categorize dispute types for 95% of cases using deep-learning neural networks and random forests (F1 score > 0.92), and geolocate them to colonial villages. I also predict whether either group disproportionately won appeals, allowing me to understand the extent to which colonial courts resolved disputes.

In contrast to the view that empowering royally-biased judges weakened property rights, three main econometric findings suggest that the Mexico colonial court constrained settlers from confiscating indigenous lands more effectively. First, colonial villages exposed to this court were associated with 2 more appeals per one thousand

¹Using typical Mexican returns to schooling of 10%-15%, this implies that more than half of economic differences at the boundary can be explained by human capital accumulation.

inhabitants in 1800, equivalent to 25% of the mean, indicating increased litigation. Second, effects were almost entirely driven by property right disputes and no statistically significant differences were found for other dispute types (i.e.: contract, criminal, or regulatory). Third, indigenous litigants were 81 percentage points more likely to win appeals, compared to a mean of 47%, which substantially secured their property and curbed the expansion of large *haciendas*.

I draw conceptual insights from the legal origins theory, the historical literature and archival records to interpret these counter-intuitive findings (Glaeser and Shleifer, 2002). The Spanish Crown delegated the administration of extractive institutions to settlers, but their excessive confiscations of indigenous lands endangered natural resource extraction. Thus, the effects of better *insulated* judges in the more capable Mexico colonial court outweighed the drawbacks from their *politicized* legal adjudication, allowing the Spanish Crown to constrain the settlers' expropriatory behavior more effectively and providing indigenous communities with certain legal guarantees to protect their lands.

Next, I hypothesize that relatively more secure property rights consolidated an emerging rural middle class, whose relative enfranchisement tied them less to patronage and encouraged public good provision and labor mobility after these institutions ceased to exist. In the 19th century, the Mexican state privatized the communal lands that predominated in colonial villages, but without a system of enforceable peasant titling. Yet, in places historically exposed to the Mexico colonial court, villagers employed colonial titles to defend their ownership (Tutino, 1988). By 1910, small and medium-sized holders (ie: *rancheros*) expanded by 27% percentage points, relative to a mean of 23%, an effect that lingered through 1940 and 2000, when household ownership was still 4.6 percentage points higher, compared to a mean of 73%.

A wealth of historical and contemporary sources suggests that a growing class of titled, enfranchised peasants was less inclined to suffer further land expropriations after Independence, which is why they mobilized less for revolt or forced redistribution. Using data collected from Mexican historians, I document that these locations experienced 25 percentage points less peasant rebellions in 1821-1887, relative to a mean of 22%, a majority of them instigated by land disputes. They also exhibited 25 percentage points less uprisings during the 1910 Mexican Revolution, compared to a mean of 31% – after which an agrarian reform redistributed half of the land in the form of *ejidos*.

Likewise, small and medium-sized holders were also less prone to tie their economic subsistence to patronage. Collected data on the names of 9,845 local politicians reveals that political concentration was 3 percentage points lower during the Porfiriato era (1877-1910), relative to a mean of 44%. Most political elites (ie: *caciques*, *caudillos*) were landed elites themselves or had close connections to them. While the 1910 Mexican Revolution overthrew them, the agrarian reform implemented by PRI political elites created a new patronage system. Yet, in 1960-2000 political concentration was still 1.5 percentage points lower, relative to mean of 20%, with some evidence suggesting improvements in local governance and public good provision.

Finally, individuals in these locations also increasingly moved out of agriculture. While data is scarce, some suggestive evidence indicates that as agricultural productivity grew and markets developed, 3 percentage points of the labor force was less employed in subsistence agriculture in 1900, equivalent to 66% of the mean. In 2000, working age individuals were still 4 percentage points less likely to work in the traditional sector of the economy, relative to a mean of 6%. Further analysis shows that effects are unlikely to be driven by alternative channels, such as financial markets or social capital.

This study contributes to several strands of the economics literature. First, it relates to a large number of seminal studies linking legal institutions and economic outcomes (La Porta et al., 1998, 1997; North, 1990; North and Weingast, 1989). In particular, it complements a growing empirical field studying the effects of legal capacity (Besley and Persson, 2009). Much of the evidence comes from cross-country analysis, which unfortunately offer little guidance in discerning a variety of potential mechanisms. By unbundling the state and employing NLP algorithms to uncover history, I provide, to the best my knowledge, the first evidence on the persistent effects of legal capacity.

More narrowly, findings contrast with those that underscore the importance of judicial independence for well-functioning courts in the contexts of North America and Europe (Djankov et al., 2003).² In contexts where this element is absent, dispute resolution may work better accepting political distortions inherent in more biased but better insulated legal adjudication, particularly when the preferences of the ruler are

²My paper also complements a vast literature, mostly in the context of the USA and Europe, which underscores the importance of independent judges for legal outcomes (Rehavi and Starr 2014; Yang 2016; Dobbie, Goldin, and Yang 2018; Arnold, Dobbie, and Yang 2018; Rose and Shem-Tov 2018; Norris, Pecenco, and Weaver 2020).

shared with those of local populations, because some type of arbitrary legal enforcement is preferable to lawlessness (Glaeser and Shleifer, 2002; Olson, 1993).

The paper also deepens our understandings about the colonial origins of comparative development (Acemoglu et al., 2001). A seminal view argues that historically high land inequality is the fundamental cause of Latin America’s poor long-run growth performance (Sokoloff and Engerman, 2000). However, in the past decades, empirical evidence casted doubt on this hypothesis by finding instead a positive association between historical *haciendas* and contemporary development, for instance in Peru and Colombia (Dell, 2010; Acemoglu et al., 2008). In the absence of institutional structures that secured property rights for smallholders, large landowners provided a stable land tenure system that encouraged public good provision.

My findings plausibly reconcile these two contradictory visions. In general, the implicit Latin American counterfactual to large landowners was insecure and disenfranchised smallholders. However, the case of Mexico shows that when colonial courts operated more effectively, a rural middle class similar to the one that predominated in some parts of North America emerged. Thus, the lack of legal institutions with the historical capacity to constrain elites or provide guarantees for citizens significantly conditioned the effects of inequality on the continent’s economic trajectory.³ Attempts to improve the way these institutions work may provide a more useful avenue for changing the underdevelopment equilibrium than forced redistribution (i.e.: agrarian reform).⁴

The paper is organized as follows. The next section provides a historical overview of colonial courts (*Reales Audiencias*) and their assignment in Mexico. Section 3 discusses the historical and contemporary data used, construction of information and text analysis. Section 4 presents the spatial regression discontinuity specification. Section 5 tests the main findings on economic prosperity. Section 6 empirically examines theoretical mechanisms, primarily focused on property rights, politics, governance, and labor markets, and rules out alternative stories. Finally, section 7 concludes.

³Other recent Latin American studies support this conclusion as well. For instance, colonial courts were important for constraining colonial bureaucrats (Guardado (2018)), implementing colonial centralization and fiscal reforms (Chiovelli et al., 2023), or improving indigenous trade and entrepreneurship (Diaz-Cayeros and Jha, 2022).

⁴See, for instance, other recent studies in Mexico (Dell, 2012), El Salvador (Montero, 2022) or Colombia (Galan, 2020) where agrarian reform had mixed effects on a range of economic and political outcomes.

2 Colonial Courts in Mexico

As the colonization of the Americas unfolded in the early 16th century, the Spanish Crown transplanted a civil law system to impart justice. Central to the system were *Reales Audiencias*, which acted as supreme courts of appeals. Among their most important tasks was to settle disputes among settlers and indigenous villagers (Burkholder and Chandler, 1977).⁵ These institutions were composed of judges called *oidores*, who relied heavily on bright rules and written decrees for legal adjudication.⁶ Judges were supported by other law enforcement resources, including prosecutors (*fiscales*), notaries (*escribanos*), bailiffs (*alguaciles*), and military escorts.⁷

A key element in their design was royal control. Through the Council of the Indies, the Spanish Crown appointed most royal judges and went to extreme lengths to encourage their loyalty and professionalism.⁸ Candidates with advanced law degrees or noble ancestry were favored to reduce conflicts of interests. Once in the Americas, they were prescribed to a secluded life and forbidden to take part in public events or engage in profitable activities (i.e.: hold assets, trade, etc.). Moreover, their salary was much higher than those of other royal officials to curb the risk of bribery (Burkholder and Chandler, 1977).

Mexico provides a unique historical setting to examine the transplantation of this civil law system, because it was the only Spanish colony to possess two colonial courts with varying degrees of legal capacity.⁹ The first, called the *Real Audiencia de Mexico* - henceforth Mexico colonial court - was established in 1527 by the conquistador Hernán Cortés on behalf of King Charles V.¹⁰ In 1548, the conquistador Nuño de Guzmán convinced King Phillip II to establish another court called the *Real Audiencia*

⁵Colonial courts also investigated settlers' usurpations of royal authority through periodic audits (*juicios de residencia*) and were sometimes delegated other administrative functions, particularly lower-ranked courts.

⁶Laws were composed of a myriad of decrees issued over centuries, including the seminal laws of the 16th century, such as the *Laws of Burgos* (1512) and the *New Laws* (1542), and compiled by Charles II in the *Compilation of the Laws of the Kingdoms of the Indies* (1680).

⁷Such was their power that, only under rather special circumstances, their decisions could be overruled by the Council of the Indies in Spain (Burkholder and Chandler, 1977). However, their reach excluded ecclesiastical, military or mercantile affairs, which had special jurisdictions (*fueros*).

⁸However, between the late 17th century and the mid 18th century, a large part of judicial appointments were sold by the Spanish Crown (Burkholder and Chandler, 1977).

⁹The Viceroyalty of New Spain was composed of the current territories of Mexico, Central America, and parts of the United States, including Texas, New Mexico, Arizona and California.

¹⁰Its jurisdiction initially encompassed the whole of New Spain, but was soon incapable of governing altogether as the Spanish colonization expanded northward.

de Guadalajara - henceforth the Guadalajara colonial court. ¹¹ Both courts worked separately for more than two and a half centuries until the Mexican independence in 1821 (Parry, 1948).

The jurisdictions of colonial courts were precisely described in the Compilation of Indian Laws of 1680.¹² The Guadalajara colonial court ruled over the northern regions of New Spain, including the great silver mines of Zacatecas and Aguascalientes, and parts of the modern United States, such as California and Texas. Further down, the Mexico colonial court encompassed central Mexico and the southern indigenous territories, including Oaxaca and all the way south to the Guatemalan border. The boundary between them cut through parts of the current states of Colima, Jalisco, Michoacán, Guanajuato, San Luis de Potosí and Nuevo León (see Figure 1).

A significant aspect is the manner in which the boundary was arbitrarily determined. The area was the scene of the most dangerous native revolt in the early Mexican conquest - the Mixton war of 1541. After the war, the Crown sent a royal mission to New Spain to investigate the surge of indigenous revolts. The mission described the extreme disorder prevailing in the area and recommended that a court be established. The chief duties of such a court would naturally be to settle disputes between rival settlers, or between settlers and indigenous communities.

Based on this, in 1548 King Charles determined the boundary with the express purpose of restoring order in the turbulent northern provinces (Gerhard, 1972; Parry, 1948). It was thus based on idiosyncratic political circumstances, unrelated to other institutional boundaries and pre-existing differences in the populations (ie: Aztec or Tarascan Empires) or the environment. Importantly, it was drawn before the discovery of the silver mines in Zacatecas in the second half of the 16th century.

The Mexican historiography suggests the legal capacity of these courts varied discretely at their historical boundary, because they exhibited key differences in impartiality and law enforcement resources (see Figure 1). Throughout the colonial period, the Mexico colonial court was more capable. It was directly controlled by the Spanish Crown, since the Viceroy presided it. At the end of the 16th century, the court was allocated 8 *oidores*. Most of them held advanced law degrees, which guaranteed loyalty and professionalism. Due to its strategic location, the court was

¹¹This colonial court was also known as the *Real Audiencia of New Galicia*.

¹²Although there were episodes of tension, most notably in the province of Colina, the boundary remained intact for most of the colonial rule.

also endowed with several law enforcement officers (i.e.: prosecutors, notaries, etc.) and military escort, making legal adjudication more effective.

In contrast, the Guadalajara colonial court was relatively much less capable. From the beginning, its president held the governorship of New Galicia, making it susceptible to local elite influence.¹³ The court was only allocated 4 *oidores*, many under the figure of *oidores alcaldes mayores* – meaning they simultaneously held local political offices – or without prior legal experience. For instance, in 1550 the bishop of New Galicia complained to the King that “the whole kingdom is divided by disorders [...] through the work of partial and inexperienced judges.” (Parry, 1948, p.273). In another telling example, a royal auditor complained that “with Indian affairs [...] royal decrees were not be obeyed, because some of the *oidores* do not wish it”.¹⁴

Likewise, the court had considerably less law enforcement officials. Initially, there were even “no lawyers or prosecutors, only the *oidores*”. This complicated dispute resolution such as in 1562, when the court tasked a prosecutor to investigate indigenous crimes in Zacatecas but “for eight months [he] patrolled the mountains [...] without ever coming to grips with his elusive foe” (Parry, 1948, p.279). Also, judges could not count on military escort, making them subject to coercion. Overall, problems were of such magnitude that in 1574 the president of court complained “there was little litigation in New Galicia and consequently little work” (Parry, 1948, p.266).

3 Data

3.1 NLP for Analyzing Colonial Court Records

I employ a variety of sources and methods to examine the persistent effects of colonial legal capacity in Mexico. First, I draw from the Historical-Geographic Information System (HGIS) of the Indies (1701-1808) – produced by the University of Graz, Austria – to pinpoint the boundary between colonial courts (see Figure 1). HGIS maps the administrative boundaries of colonial institutions across Spanish America. As described in section 2.2, the colonial courts’ coordinates in New Spain are based

¹³From time to time, it also assumed administrative duties, which limited the scope for legal adjudication. In particular, it legislated on local matters, public good provision, military and defense needs, and appointed certain political offices (Parry, 1948).

¹⁴A.G.I. Auda. de Guadalajara 5I. Lic. Lebrón de Quifiones al Rey, de Tlaximoroa en Michoaca’n. io de Septiembre 1554.

on original Mexican and Spanish historiographical sources (Parry, 1948; Gerhard, 1972). I also match colonial villages to modern municipalities using the equivalences produced by Tank de Estrada et al. (2005).

Then, I web-scraped rich information on 69,966 court records from the colonial courts' archives. These contain the title, date, location, and the archivist's description of events, including the actors involved, the nature of the dispute, and court decisions. Data from the Mexico colonial court was located at the *Archivo General de la Nación* in Mexico City, while those from the Guadalajara court was housed at the *Biblioteca Pública del Estado de Jalisco* in Guadalajara. They span more than two centuries of Spanish rule (1594-1821) and contain the universe of legal disputes in New Spain (*ramos civil, criminal, indios, tierras*), as well as investigations pursued by the Spanish Crown against settlers.

I use machine learning (ML) for natural language processing (NLP) algorithms to curate data and analyze their text. I accurately categorize 95% of colonial disputes according to the following types: property rights, contracting, criminal and regulation. I focus on those involving settlers and indigenous communities, and predict in which cases either of them won, allowing me to disentangle whether colonial courts disproportionately benefited one group. When employing deep-learning neural networks and random forests, predictions exhibit F1 scores of at least 0.92 (see Table A.11). I employ 16,149 of cases geolocated to regions within 100km of the boundary. Sources and a precise description of the NLP analysis is found in Appendix B.2 and the Online Appendix.

3.2 Contemporary and Historical Outcome Data

To measure development outcomes, I use 5% random micro-level samples of the Mexican population censuses in 2000 and 1960 produced by INEGI – the Mexican statistical office. These are representative of localities with populations above 2,500 inhabitants, allowing me to precisely georeference individuals across the boundary. They contain anonymized information about household income, education levels, access to public services, employment, and ownership (see Appendix B.5). For certain robustness exercises, I also use aggregated locality-level information. INEGI is widely considered to be a reliable and accurate source of government produced statistics.

Furthermore, I use various historical and contemporary sources to explore channels

of persistence. Municipal information from the 19th century is rather limited, because continued political chaos restricted its collection until the autocrat Porfirio Diaz came to power. Thus, I draw from the *Directorio de Ranchos y Haciendas* in 1910 – a comprehensive census of formal small, medium, and large estates just before the Mexican revolution – and the 1940 population census – which lists the number and type of municipal estates in that year – to understand patterns of property rights security after Independence.

Moreover, I employ the *Enciclopedia de Municipios Mexicanos* – which contains a compendium of the histories of each municipality – to examine the nature of politics. I primarily gather data for the late 19th and 20th centuries on the names and surnames of 9,845 local politicians who held political office in locations near the boundary, and employ them to measure political concentration, a process more thoroughly described in section 6 and Appendix B.4. Likewise, I complement this source when necessary by extracting information on revolts and rebellions proxies from historian [Reina \(1980\)](#), who compiled archival data on this topic in the century following Independence (see Appendix B.3).

Importantly, to measure local governance I employ the *Encuesta de Desarrollo Municipal* in 2000 and *Cuentas Públicas Municipales* in 1989-2019 – all produced by the Mexican statistical office (INEGI). These were self-reported surveys made to municipalities and supervised by national authorities, which inquire about the local number and quality of public employees, bureaucratic specialization, government regulations, and public finances, among other relevant issues (see Appendix B.5). Ideally, I would have collected data after Independence or the following century, but to the best of my knowledge, no systematic trustworthy sources exist for that time period.

For ruling out alternative channels, I measure social capital using various waves of the *Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública* in 2011-2019 – a bi-annual public opinion survey on security issues performed across the country. Surveys contain information about people’s attitudes towards institutions and corruption (see Appendix B.5). A key advantage is that sample sizes are considerably large compared to other popular surveys (i.e.: Latinobarometro or World Value Surveys). I also collect municipal information on capital markets, primarily banks, from the *Directorio Nacional Minero* in 1910 - a comprehensive census of mines at the end of the Porfiriato – and the *Comisión Nacional Bancaria* in the 2000s.

Finally, I employ additional information to test for balance on pre-treatment characteristics. I use elevation data produced by NASA’s Shuttle Radar Topography Mission (SRTM, 2000) and geographical rasters (soil fertility, rainfall, etc.) from INEGI. Similarly, I collect historical information from the *Suma de Visitas* (1548-1550) - a series of surveys ordered by King Charles V that inquired about the of state of politics, taxation, population, ethnic divisions, trade and evangelization in New Spain. Even though sample sizes are very small and surely suffer from measurement error, they still reflect early colonial development patterns. Appendix B.1 describes the coding in more detail.

4 Empirical Strategy

My empirical strategy relies on a spatial regression discontinuity design (SRDD) exploiting the discontinuous change in the legal capacity of colonial courts at their historical boundary in Mexico. I compare individuals and households in nearby locations historically exposed to the more capable Mexico colonial court to those in the less capable Guadalajara colonial court, but that have since been subjected to the same Mexican institutions. The boundary forms a multidimensional discontinuity in longitude-latitude space. I estimate regressions of various forms following:

$$y_{i,m,s} = \alpha + \gamma mexicom_m + f(\text{geo}_m) + X'_{i,m}\beta + \phi_s + \epsilon_{i,m,s} \quad (1)$$

where $y_{i,m,s}$ is an outcome variable of interest for observation i in municipality m along boundary segment s . $mexicom_m$ is an indicator variable that equals 1 if municipality m belonged to the Mexico colonial court and 0 otherwise. $f(\text{geo}_m)$ is an linear RD polynomial, which controls for smooth functions of geographic location. $X_{i,m}$ is a set of covariates, such as elevation, slope, and distance to Mexico City and USA, to explicitly control for proximity to the country’s largest urban area and trading partner. For regressions examining micro-level outcomes, I also include a vector of individual or household demographic characteristics. ϕ_s is a set of 70km boundary segment fixed effects and equals 1 if municipality m is closest to segment s and zero otherwise. Finally, $\epsilon_{i,m,s}$ is an error term clustered at the municipal level.

The baseline specification uses a local linear RD polynomial and limits the sample

to observations within 75 kilometers of the boundary. ¹⁵ Since there are many options for how to specify the RD polynomial and bandwidth, and I am unaware of a widely accepted method to select them, I perform several robustness checks to document that point estimates remain fairly stable across regressions following (Gelman and Imbens, 2018; Imbens and Kalyanaraman, 2012).¹⁶ The SRDD requires two identifying assumptions: (1) all relevant factors besides treatment must vary smoothly at the boundary of the colonial courts and (2) there shouldn't be selective sorting.

Following (Dell et al., 2018), if c_1 and c_0 denote potential outcomes under treatment and control, x denote longitude, and y denote latitude, the first identifying assumption requires that $E[c_1|x, y]$ and $E[c_0|x, y]$ are continuous at the boundary for observations located on the northern side to be an appropriate counterfactual for observations just south of it. To assess the plausibility of this assumption, I look at geographical and pre-treatment balance. Table 1 examines a variety of geographic characteristics and regressions of the form described in equation (1). I treat municipalities as independent observations because the use of spatially correlated standard errors tends to slightly increase their magnitude.¹⁷

Columns (1) and (2) examine elevation and slope, respectively. Point estimates on the Mexico colonial court side are small relative to the mean and statistically insignificant. Not surprisingly, column (3) shows that temperature is likewise balanced. Column (4) does reveal differences in precipitation either. Column (5) documents that soil quality is similar on either side of the boundary. Finally, column (6) examines the kilometers of river flowing through each municipality, which is also balanced. Also, in all specifications, coefficients are small relative to the means. In sum, results suggest that across several key geographical conditions there is statistical balance.

Table 2 examines economic and social patterns in 1548-1550. The basic intuition is to show there were no significant disparities in relevant covariates that may have determined the selection of the boundary or confound outcomes of interest. Columns (1) and (2) document imperceptible differences regarding native populations and eth-

¹⁵This bandwidth is close to the one found using (Calonico et al., 2020, 2014) in a one dimensional approach.

¹⁶The specification of multidimensional RD regressions is subject to significant debate. Thus, in the empirical exercises I show robustness checks to several specifications.

¹⁷However, results remain fairly the same if Conley standard errors that account for spatial correlation are employed instead.

nic mix – parts of the region of study belonged to the Tarascan Empire –, suggesting ethnic balance. Columns (3) - (7) suggests balance in colonial economic activities as well (agriculture, mining, extractive institutions like *encomiendas*, tributes or markets). Finally, there is balance regarding the presence of the Catholic Church (column 8). While the sample is small, results are fairly consistent.

However, alternative explanations are also plausible. One may be worried, for instance, that for some intrinsic reason places on the Mexico colonial court side were initially richer and this gave them an edge. If anything, though, Table 2 suggests the southern side didn't exhibit a better agricultural landscape or wealth stock in the first place. The silver mines of Zacatecas were located further north in the states of Zacatecas, Chihuahua and Durango, far away from the boundary. Likewise, many of the territories were largely unpopulated and unexplored, and no other pre-colonial (ie: Tarascan Empire) or colonial institutions or geographical barriers coincided with the boundary (Gerhard, 1972; Parry, 1948).

The second crucial assumption is no selective sorting across the boundary. This would be violated if relatively productive individuals moved from the Guadalajara side to the Mexico side and these differences persisted. Section 2.2 discussed qualitative evidence about indigenous attachment to colonial villages, making it relatively costly for them to move (Lockhart, 1992; Tutino, 1988). Also, that labor regulations forbade native migration. To investigate whether these patterns changed after Independence, I look at migration across various population censuses. Results in Table 3 show that the baseline results are robust after accounting for selective migration 1960 or 2000.

5 Effects on Economic Prosperity

5.1 Contemporary Income

This section examines the persistent effects on economic prosperity. First, I use the 2000 Mexican population census to study contemporary household income, a salient measure of living standards. I subtract transfers received from the government and assume that children aged 0 to 4 are equal to 0.4 adults and children aged 5 to 14 are equal to 0.5 adults (Deaton (1997)). As standard, I also drop observations belonging to the bottom and top 1% of the income distribution to eliminate extreme values that introduce noisiness. While using consumption would probably be more convenient, I

am unaware of any consumption measures recorded in Mexican censuses.¹⁸

Estimates from equation (1) are reported in Table 3, using the arcsin of equivalent household income as the dependent variable. All baseline regressions include observations within 75km of the boundary along the central portion that is balanced on key geographic and pre-treatment characteristics.¹⁹ I also include the standard controls discussed in section 4, as well as the number of household members aged 0-4, 5-14, and 15 and older. Moreover, standard errors are clustered at the municipal level. Statistical significance remains relatively unchanged if alternative boundary segment fixed-effects are employed or errors are adjusted for spatial dependence.²⁰

Overall, results indicate that contemporary income for households located on the side of the Mexico colonial court is, on average, around 20% higher, a result that is statistically significant at 1% or 5% confidence levels. Point estimates remain economically similar when performing several specifications and robustness checks. For instance, a local linear polynomial in latitude and longitude (column 1), a local linear polynomial in distance to the boundary (column 2), or including both polynomials (column 3). They are also unchanged when using higher order quadratic or cubic functional forms (columns 4 and 5).

Figure 2 plots point estimates for observations within 50km and up to 100km of the boundary, at 5km intervals. Dashed lines show 95% confidence intervals. The panels in different rows employ various functional forms for the RD polynomial: linear latitude-longitude (row 1), linear distance to the boundary (row 2), both linear latitude-longitude and linear distance to the boundary (row 3), and analogous specifications using quadratic functional forms (rows 4 through 6). Effects are remarkably robust to alternative bandwidth and RD polynomial choices, though naturally estimates for smaller bandwidths tend to be noisier, particularly for quadratic polynomials.

Moreover, in Table 3 I perform additional checks. One concern may be that Guadalajara, the center of the Guadalajara court and a manufacturing hub today, is driving the results. Other important cities on the other side of the boundary include

¹⁸Household surveys also exhibit less variation near the boundary.

¹⁹The single-dimensional specifications produce similar estimates when the sample is limited to fall within 75 km of the boundary.

²⁰Results are economically similar when localities or municipalities are used as alternative units of analysis. Or, when smaller boundary segment fixed-effects are employed, even though some statistical power is lost.

León and San Luis de Potosí. In columns 6 and 7 estimates are robust to dropping state capitals, which largely removes urban centers, as well as including state fixed-effects. Another potential problem would arise if migration across the boundary was rampant. However, column 8 (and previously discussed in the previous section) illustrates there is no statistical evidence of contemporary selective migration.²¹

One additional worrying concern is that the boundary may be at an unusual place. I address this by examining alternative samples. The first considers only places 25-75 km away, omitting the boundary region itself (column 9). Additional robustness checks using placebo boundaries are shown in Table A.1 in Appendix A. I shift the boundary 100km north, south, west, and east, in order to see whether income differentials of the magnitude found along the boundary are typical. I assign the richer side of each boundary segment as treated and estimates do not reveal a statistically significant discontinuity. Finally, in column 10 I control for population density, but point estimates remain similar.

A final check is to conduct a randomization inference simulation. For each of the study's outcomes, I randomly re-assign distance to the boundary. I regress the outcome of interest on the re-assigned indicator for whether the municipality belonged to the Mexico colonial court, and then repeat this exercise 1,000 times. Table A.8 in Appendix A reports the share of the 1,000 absolute placebo coefficients that are larger in magnitude than the absolute actual coefficient on the Mexico dummy. The p-values computed using this exercise provide a broadly similar picture to those computed using conventional inference. Taken together, evidence indicates royal control of colonial courts had beneficial developmental effects in Mexico.

5.2 Education

Human capital is another relevant proximate factor of economic prosperity. It is more widely and precisely measured across time than income, particularly in developing economy such as Mexico (Deaton (1997)). Table 4 examines individual-level data on years of schooling from Mexican population censuses in 1960 and 2000. I focus on adult cohorts above 25 years old and split them in several categories depending on when they were born: before 1880, between 1880-1899, 1900-1919, 1920-1939, 1940-1959, and after 1960. The data spans more than ten decades going back to the 19th

²¹When I use other population censuses, for instance in 1900, there is no evidence of selective migration either.

century, allowing me to study the historical persistence of educational disparities.

Column (1) shows individuals living in places inside the former the Mexico colonial court accumulate on average 0.7 more years of schooling, relative to mean of 7. Columns (2) through (6) report results for various cohorts. Coefficients reveal a similar pattern and are statistically significant at 1% and 5% confidence levels. Their magnitudes are considerably large relative to sample means, but are decreasing over-time (from 25% in 1880 to 10% in 2000).²² Using typical contemporary returns to schooling of 10%-15%, they are large enough to explain about half of economic differences at the boundary, suggesting public goods effects have been quite persistent over centuries.²³

6 Mechanisms

Previous findings raise the intriguing question of why effects persisted long after colonial courts disappeared, particularly in the face of the major upheavals that followed, including Independence or the Mexican Revolution. Thus, in the following sections I explore channels of persistence. I focus on property rights, a central theme in the Mexican historical literature and archival records. I hypothesize that regions exposed to more capable colonial courts benefited from increased security in property rights even after these ceased to exist, creating a feedback loop in the long-run that led to the emergence of a small rural middle class, whose relative political enfranchisement encouraged public good provision and labor mobility.

6.1 Conceptual Framework

In this section I lay out a conceptual framework based on insights from the legal origins theory (Glaeser and Shleifer, 2002). The effects of transplanting a civil legal system are theoretically ambiguous. At the start of colonization, the Spanish Crown delegated settlers the administration of extractive institutions to maximize natural resource extraction. One salient example was the *encomiendas* - land grants conferring settlers the right to demand labor and tributes from indigenous communities – out

²²Similar effects arise when looking at other public goods, such as running water, sewage or electricity. They are available upon request but not shown for simplicity.

²³As in the case of income, Table A.2 in Appendix A shows coefficients are consistently robust to variations in sample size, RD polynomials, bandwidths, and additional controls.

of which a landed elite of large *haciendas* emerged (Brading, 1988; Van Young, 1981; Chevalier, 1976).²⁴ Thus, the higher legal capacity of the Mexico colonial court possibly caused a *politicization* effect on judges' legal adjudication, exacerbating royal land confiscations and weakening indigenous property rights (Glaeser and Shleifer, 2002, p.1197-1221).

However, widespread indigenous exploitation caused a demographic collapse that significantly endangered natural resource extraction.²⁵ Consequently, in 1542 the Spanish Crown introduced laws protecting the rights of indigenous communities to own land and self-rule within colonial villages.²⁶ For instance, most Mexican villages (*pueblos*) practiced traditional communal land tenure systems (*ejidos*) and were governed by native leaders (*caciques*) (Knight, 2002; Lockhart, 1992). Colonial courts were tasked to uphold these laws, which settlers often disregarded leading to further unlawful land confiscations by the landed elite.²⁷

Judges heard indigenous appeals to constrain the expropriatory behavior of settlers. As King Phillip II emphasised to them “if natives appear before you, give them justice and protect them from who might cheat them” (Lockhart, 1992; Owensby, 2008).²⁸ For instance, an archetypal example from the thousands of Mexican colonial court records that exist describe how in 1593 “the natives from the town of Santa Maria Atengo complained against Juan Antonio de Zavala, landowner of the San Nicolas de Ulala estate, about the possession of land” (see Online Appendix for other examples). In no few instances, judges secured their property rights as exemplified in another court record where “San Bartolome Atecaman [...] is ordered to protect the natives in their ownership of the mountain, land and water as they express”.

²⁴Other extractive institutions, for instance, included the *mita* - a forced labor system used in mining activities, and the *repartimiento* - an internal trade tax forced on natives.

²⁵The demographic collapse of native populations and the complaints raised by the Church about indigenous exploitation fueled a vibrant philosophical and legal debate about the responsibilities of the Spanish Crown.

²⁶Settlement into colonial villages was in many cases limited to providing legal recognition to pre-colonial villages, such as the *altépetl* in Mexico or the *ayllus* in Peru. In other occasions, it reallocated indigenous populations to fit labor supply needs (or *reducciones*). Labor regulations prohibited indigenous villagers from migrating across villages without consent.

²⁷giving rise to the famous dictum: “I Obey But Do Not Comply” (“*Obedezco pero no cumplo*”), which implied that they recognized the authority of the King, but not that of the law. The phrase was supposedly first used by the *conquistador* of Mexico, Hernán Cortés, when he refused to obey King Charles V on the Mexican conquest strategy.

²⁸Presenting an appeal involved considerable costs, such as paying translators and bringing witnesses to the court. Since appeals could extend for months and even years, indigenous communities needed to maintain these efforts

As discussed extensively in section 2, the historical literature highlights that the Guadalajara colonial court severely struggled to constrain these behaviors. Without the sufficient legal capacity, judges were susceptible to external bribery or coercion, which reduced or politicized legal adjudication in a way that favored settler rather royal interests (Parry, 1948; Haring, 1947). Consequently, a countervailing *insulation* effect in the more capable Mexico colonial court was that it better insulated judges from settlers' excessive coercion or influence, allowing them to hold settlers accountable more effectively, and providing legal guarantees to native populations for strengthening their property rights (Glaeser and Shleifer, 2002, p.1205).

6.2 Property Rights

This section draws from the previous conceptual framework to empirically examine the long-run role of colonial courts in securing property rights. I employ the curated archival data from 16,149 colonial court records described in section 3. I categorize dispute types and construct several measures of court appeals per colonial village, which are normalized by population in 1800 (see a description of the procedure in Appendix B.2). I complement these with land information from the *Directorio Oficial de los Ranchos y Haciendas de la República Mexicana, 1910* and property ownership information from the 1940 and 2000 population censuses. I use an extended bandwidth of 100 kilometers to increase variation, but otherwise estimate the same baseline equation described in section 4.

In the region of study, there were approximately 8 indigenous appeals per village per 1,000 inhabitants in 1800 during the colonial period. Property right disputes represented almost 20% of court cases (whereas contract (35%), criminal (33%), regulatory (7%) and other (5%) followed as shown in Appendix X Table X). 25% of cases involved indigenous communities and most of them explicitly asked the Spanish Crown to secure their lands. Approximately 17% of court cases contained a court ruling, which I used to predict dispute winners among settlers and villagers. Of these cases, an overwhelming 90% benefited indigenous communities.

In contrast to the view that capable courts led to more royal expropriations, Table 5 documents higher dispute resolution in places belonging to the Mexico colonial court. Column (1) shows that indigenous villagers filed almost 2 more appeals against settlers relative to those on the other side of the boundary, equivalent to 25% of the

mean. The effect is almost exclusively driven by land confiscations, as column (2) reports 0.4 more property rights disputes, compared to a mean of 0.6.²⁹ Importantly, column (3) shows indigenous litigants were associated with an 81 percentage points increased likelihood of winning cases against settlers, compared to a mean of 47%, which generally secured their titles and curbed the expansion of large *haciendas* (Brading, 1988; Van Young, 1981; Chevalier, 1976). All coefficients are significant at the 5% confidence level.

Results have broader implications for our understandings of legal systems in contexts which lack judicial independence, such monarchies or dictatorships. One interpretation is that in the Mexican case, the *insulation* effect of increased legal capacity outweighed the *politicization* effect, because the preferences of the Spanish Crown to constrain settlers aligned with those of indigenous communities. In such scenarios, courts may work better accepting political distortions inherent in more biased but better insulated legal adjudication, particularly when

The consequences of these institutional structures plausibly persisted in the centuries following Independence, despite the fact that the new Mexican courts were even more biased in favor of landed elites than their colonial predecessors.³⁰ In the mid 19th century the Mexican state abolished the communal land tenure that predominated in colonial villages and a few decades later autocrat Porfirio Díaz pushed to privatize lands, but without a system of enforceable peasant titling.³¹ Yet in places historically exposed to more capable colonial courts, villagers employed colonial titles to claim private ownership. Column (4) indicates that the number of small and medium-sized peasants called *rancheros* expanded by XX percentage points.³² Results are in line with 1877-1910 statistics showing that titled farmers more than tripled in the region while large estates declined 10% (Tutino, 1988, p.284). Conversely, masses of landless peasants became laborers at *haciendas* on the other side of the boundary, which tied their economic subsistence to landed elites.

In the early 20th century, the state redistributed through agrarian reform over half of its surface in the form of *ejidos* – a system of communal and private plots

²⁹Although not shown for simplicity, estimates also point to higher dispute resolution involving contract, criminal or regulatory disputes, but without statistically significant disparities along the boundary.

³⁰See for example due to recurrent biases in favor of landed elites.

³¹See for instance Ley Lerdo 1856.

³²Colonial titles were used to proof ownership

with incomplete land rights that remained in place until 1992 (Knight, 1986a,b)³³ Only until that year was national titling program called Procede rolled out to resolve land disputes. Column (5) suggests that land redistribution was less intense in places where a middle-sized peasant land tenure system (*rancheros*) was more prevalent. Data from 1920-1940s suggest that *ejidos* were less than half of the national average in the region. Finally, column (6) shows that in 2000 households were 5% percentage points more likely to possess a title, relative to a mean of 73%.

Overall, results strongly suggest that relatively more secure property rights on the Mexican colonial court side consolidated an emerging rural middle class. A widely held theory argues that historical high inequality lies at the heart of Latin American underdevelopment (Sokoloff and Engerman, 2000). However, empirical evidence has casted doubt on this hypothesis by finding instead a positive association between historical *haciendas* and contemporary development, for instance in Peru and Colombia (Dell, 2010; Acemoglu et al., 2008). Their argument is that in the absence of secured property rights for smallholders, large landowners provided a stable land tenure system that encouraged public good provision. My findings in Mexico plausibly reconcile these two contradictory visions by showing that colonial constraints on legal capacity conditioned the effects of inequality.

6.3 Politics

In this section, I argue that increased security in property rights led to relative enfranchisement, making politics more competitive and stable. Unfortunately, systematic voting data is only available after the 1970s. In consequence, I employ the names of 9,845 local politicians and revolts in 1877-2000 collected from the *Enciclopedia de Municipios Mexicanos, 2005* and historian Reina (1980) to examine in more detail. I follow the political economy literature to proxy for political concentration during the Porfiriato and in the second half of the 20th century using measures of dynastic persistence (Ferraz et al., 2022; Querubin, 2016; Acemoglu et al., 2008)³⁴ On the other

³³Communal plots were devoted to purposes such as grazing and firewood, whereas crops were typically cultivated on individual ejidal plots.

³⁴I calculate Herfindahl-Hirschman Indexes (HHI) based on the share of years governed by a political dynasty, defined by repeating politicians' surnames within a particular period. A description of the steps followed can be found in Appendix B.4. The average political concentration measure for municipalities in the region of study was 0.21, which implies that the effective number of political dynasties during the period was 3 families.

hand, I code indicator variables measuring participation in revolts or revolution and whether they had property rights origins (see Appendix B3.). I report estimates using the same baseline regressions as before.

Amid the dysfunction of the Mexican state after Independence, local strongmen (i.e.: *caciques*, *caudillos*) – usually landed elites themselves or with links to them – swept in to impose order and enforcement in locations on the Mexican colonial court side.³⁵ Their power greatly depended on a kind of informal politics that combined repression, patronage, and charismatic leadership (Knight and Pansters, 2006). Enfranchised, secure peasants were systematically less inclined to be trapped to their electoral patronage, while on the other side landless peasants were subjugated with it (Tutino, 1988). For example, during the rule of autocrat Porfirio Diaz in 1877-1910, column (3) in Table 6 documents that the presence of political bosses was 3 percentage points lower, relative to an HHI mean of 0.21.

The presence of local strongmen often led to massive land confiscations, escalating peasant grievances. Yet, enfranchised small and medium-sized holders mobilized less for forced redistribution through revolution or revolt (Tutino, 1988; Knight, 1986a). In Table 6, column XX documents that these locations experienced 26% percentage points less revolts in 1821-1877, relative to a mean of 57%.³⁶ Most were driven by dispossessed peasants with land grievances, as shown in columns XX. Decades later in 1910-1920, they were 19% percentage points less likely to exhibit violent events during the transformative Mexican Revolution, relative to a mean of 45% (column 5).³⁷ As before, Table A.5 shows estimates are robust to alternative checks.

After the Mexican Revolution, the winning PRI party was also less successful in institutionalizing a political patronage system linking *ejidal* elites to politicians too (Ronfeldt, 1973). In consequence, columns (2) to (5) indicate that political concentration in 1940s and until today continued to be xx percentage points lower, relative

³⁵During much of the 19th century, rival political factions between Liberals and Conservatives struggled to seize power across the country. Mexico changed presidents numerous times until autocrat Porfirio Diaz came to power in 1877. *Caciques* and *caudillos* typically symbolize political concentration – from 19th century former military politicians in the Porfiriato, to 20th century revolutionary and PRI politicians, to contemporary populist strongmen.

³⁶Revolts were lengthy protests, punctuated by sporadic violence and peasant coordination, that continued for months or years (Tutino, 1988, p.256). They sought to defend local political structures against incursions by the central government, but were typically local in their demands and scope.

³⁷See, for instance, the Hidalgo or Chalco insurrections. The rebellions led by Pancho Villa in northern Mexico and Emiliano Zapata in central Mexico are the largest and most well-known of these movements.

a mean of X (see Table A.4 for robustness checks). Interestingly, results are quantitatively similar when comparing before and after the Mexican Revolution in 1910, or through democratic reforms in the 1980s, illustrating that new political elites reproduced patronage systems in the face of major critical junctures.

6.4 Government

Next, I examine whether peasant enfranchisement affected local governance. Theoretically, patronage politics can negatively inhibit bureaucratic performance and possibly discourage government policies benefiting the middle class.³⁸ For example, by providing certain types of private goods (i.e: subsidies) to consolidate a political base at the expense of broad public goods. Ample qualitative evidence exists that both 19th Porfirian political bosses and 20th century PRI political elites employed patronage to control the local bureaucracy and access to public goods and services (Knight and Pansters, 2006; Knight, 1986a; Ronfeldt, 1973).

Building on this, I draw from the 1900, 1960 and 2000 Population Census and 2000 *Encuesta de Desarrollo Municipal* to construct measures of public employees, taxation and governance, including rules and regulations. In particular, I am able to precisely measure the number of local public employees and normalize it per one thousand inhabitants, municipal regulations (ie: fiscal checks and balances, urban plans, etc.), as well as measures on per capita tax and property tax revenues (see Appendix B.5). As before, I estimate the municipal baseline regression described in section 4.

Table 7 documents that locations historically exposed to the Mexico colonial court also exhibited better governments which incentivized public good provision. Column (1) shows they have almost 0.14 fewer public employees in 1900 per one thousand inhabitants, equivalent to 15% of the mean. Column (2) indicates they also exhibited less public employees in 1960 and 2000, when the coefficient was -1.8 relative to a mean of 7. Moreover, while historical tax data is limited, contemporary estimates show these locations also collected more tax revenues, particularly property tax revenues (columns 4 and 5). Estimates are significant at 5% confidence level. Results are consistent with previous studies showing that patronage inefficiently increases the size of the bureaucracy and suggestive about how legal institutions complement fiscal

³⁸Recent empirical evidence documents patronage negatively affects bureaucratic development (Besley et al., 2022; Xu, 2018).

institutions (Besley and Persson, 2009).

6.5 Labor Markets

In the long-run, it is also probable that enfranchisement also influenced the sectoral allocation of the labor force. For instance, the 19th landed elite tied landless laborers or sharecroppers to the land (Van Young, 1981; Tutino, 1988).³⁹ After the Mexican Revolution, restrictions imposed by the agrarian reform also discouraged individuals from leaving agriculture, because ejidal lands could not be sold, rented, or converted to non-agricultural use (De Janvry et al., 2015). Alternatively, lower agricultural productivity in places with more revolts and land redistribution could affect labor mobility.

I employ the 1900, 1960 and 2000 Population Censuses to explore these issues. I code indicator variables measuring whether working-age individuals were employed in the agricultural or manufacturing sectors in those years.

The econometric evidence in Table 8 supports this view. Estimates document that in 1900, the percentage of the labor force working in agriculture was around 3.3 percentage points lower in places exposed to the Mexico colonial court, although the result is not significant possible due to low variation. However, this pattern deepened in 1960 through 2000, when individuals were 4.2 percentage points less likely to be employed in that sector, relative to a mean of 6.4. The coefficient in the labor force regressions are significant at the 10% level. Likewise, the percentage of the population working in industry was somewhat higher, although very noisily estimated. Results are in line with individuals being less tied to the land.

6.6 Financial Markets

While I have argued that peasant enfranchisement is an important mechanism linking property rights to modern economic outcomes, an alternative channel is that these also deepened financial development. Peasant titles could have been used as a collateral to access credit or financial markets, opening economic opportunities for small and medium-sized holders. Likewise, political stability could have attracted investment, such as in 1877-1910, when the autocrat Porfirio Diaz opened the economy to foreign

³⁹See (baland & robinson, 2012) for an example of the case in Chile.

investors in order to boost the mining and industrial sectors which required large capital sums (Haber et al., 2003; Coatsworth, 1978).

Historical data on credit or banks is limited. Yet, to explore this issue I employ information from the 1900 Population Census and the *Directorio Oficial Minero de Mexico, 1908* – the most comprehensive mining census from the Porfiriato. These provide imperfect but still suggestive data on the banking sector and mining financial services (i.e: capital, foreign investment, stock options) just before the Mexican Revolution. As before, I code variables detailing the existence of various financial services and geolocate them to 1900 municipalities to make uniform comparisons. Finally, I complement it with more contemporary financial inclusion data from INEGI, including on bank and credit access.

Estimates illustrate these mechanisms are unlikely to be relevant in this context. In Table 9, columns (1) to (3) document that locations historically exposed to the Mexican colonial court did not exhibit more banks per capita in 1900 or 2000. Likewise, no appreciable statistical differences are seen in columns (4) to (7) in terms of financial market penetration, for example in the mines’ capital requirements, stock options, or foreign investment. Patterns don’t seem to change overtime, as columns (x) to (x) indicate that financial inclusion, such as credit card use, are similar across the boundary today. If anything, coefficient signs point in the opposite direction.

Financial market results can seem surprising, but are perhaps most straightforward to interpret through politics as well. The development of capital markets was historically associated to growth in the mining and industrial sectors rather than the traditional sector of the economy (Coatsworth, 1978). And in the process of supporting these sectors, quantitative evidence shows that the Mexican state arbitrarily enforced property rights as private goods, with the resulting rents shared among business and political elites (Haber et al., 2003). Thus, despite all the political instability in the countryside, locations just north of the boundary had the same level of credit access then those south of it.

6.7 Social Capital

Another plausible intermediating factor is social capital. The communal environment that existed in colonial villages (and later resurfaced in the form of *ejidos* through agrarian reform) could have persisted and been important for securing property rights,

particularly given the history of land expropriations, or reducing informational asymmetries for political mobilization or public good provision. To explore this, I draw from municipal data from 2000 *Encuesta de Desarrollo Municipal* and public opinion data from the 2011-2019 *Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública*.

Table 10 documents results. Across a number of measures, locations exposed to more capable colonial courts exhibit on average lower social capital. Columns (1) to (2) reveal that individuals in these locations participate less in municipal activities organized by the mayor or in local council meetings through the *cabildo abierto* - an assembly mechanism inherited from the colonial period. Furthermore, columns (3) to (6) suggest that people in these areas are also less likely to participate in different community organizations, such as NGOs, civic, or neighbor groups. Most results are significant at the 5% or 10% confidence level although some are not.

Taken together, social capital is unlikely to drive the baseline findings. Instead, they are consistent with local elites capturing civil society through patronage or even offering better informal order and enforcement today than the weak Mexican state's alternative, even if not conducive to economic development. Alternatively, peasant villagers could have developed norms of cooperation for overcoming incomplete property rights or as response to historical exploitation. Market interactions weakened them. These hypothesis are in line with other studies, for example in Africa or South-East Asia, where civil society substitutes rather the complements the state (Lowes et al., 2017; Acemoglu et al., 2014).

7 Conclusions

This paper examines the persistent effects of transplanting civil law tradition in Mexico – the only American colony where the Spanish Crown transplanted two colonial courts with varying degrees of legal capacity. Using a spatial regression discontinuity design, I document that regions historically exposed to more capable colonial courts exhibit higher historical and contemporary economic prosperity. In contrast to the view royal control weakened property rights, court records analyzed with natural language processing (NLP) methods show these institutions constrained Spanish settlers against expropriating indigenous communities.

Based on the historical literature and econometric evidence, I hypothesize that

in the long-run more secure property rights consolidated an incipient rural middle class (i.e: *rancheros*). Small and medium-sized holders were more enfranchised, and thus less prone to tie their economic subsistence to the landed elite or to patronage politics. In turn, this encouraged better governance the provide more public goods and labor mobility so that individuals in these locations increasingly moved out of agriculture. Effects are unlikely to be driven by alternative channels, such as financial markets or social capital.

Findings have broad implications for our understandings of legal systems and comparative development. One is that in similar settings to colonial Mexico, it may be better to accept political distortions inherent in more biased but better insulated legal adjudication. Another one is that the lack of legal institutions with the historical capacity to constrain elites or provide guarantees for citizens to protect their property was a fundamental constraint on Latin America's development trajectory. Thus developing a better understanding of how to strengthen these institutions remain a central areas for future research.

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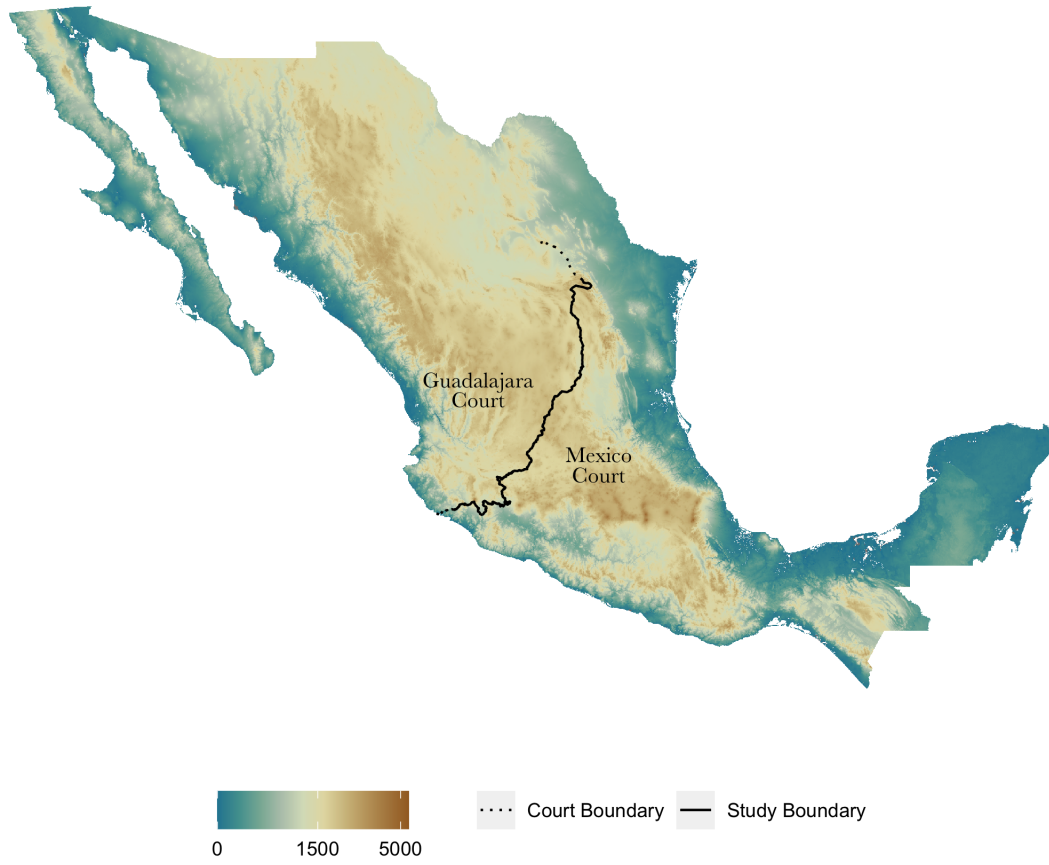
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Figure 1: Boundary of Colonial Courts in New Spain, 1548 - 1821



<i>Guadalajara Court</i>	<i>Mexico colonial court</i>
Less royal judges	More royal judges
Less prosecutors	More prosecutors
No military protection	Military protection
More admin. functions	Less admin. functions

Note: This figure shows a map of the boundary between the Mexico and Guadalajara colonial courts in New Spain – the former Spanish colony in Mexico –, and a table comparing their institutional differences. Source: [Gerhard \(1972\)](#); [Parry \(1948\)](#).

Table 1: Geographic Balance

	Elevation (in mts) (1)	Slope (in %) (2)	Temperature (in C°) (3)	Rainfall (in mm) (4)	Soil Quality (5)	Rivers (in km) (6)
<i>Mexico</i>	-107.5 (68.87)	-1.046 (0.973)	0.327 (0.430)	-1.795 (2.021)	0.0517 (0.161)	2.888 (7.917)
Obs.	218	218	218	218	218	218
Clusters	218	218	218	218	218	218
Mean	1,608	4.725	19.13	63.98	1.363	43.85

Note: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the municipality. *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include a linear polynomial in longitude and latitude, boundary segment FE, distance to Mexico City, and observations within 75km of the boundary. Source: INEGI, FAO.

Table 2: Pre-treatment Balance in 1548

	Indian Pop. (1)	Tarascan Empire (2)	<i>Encomienda</i> (3)	Agriculture (4)	Mining (5)	Tributes (6)	Market (7)	Church (8)
<i>Mexico</i>	0.637 (1.084)	0.218 (0.224)	0.138 (0.0942)	0.0758 (0.113)	0.181 (0.163)	-0.131 (0.223)	0.108 (0.095)	0.237 (0.192)
Obs.	71	117	117	117	117	117	117	117
Clusters	71	117	117	117	117	117	117	117
Mean	7.240	0.709	0.0769	0.931	0.282	0.444	0.0257	0.538

Note: Robust standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the colonial village. *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include elevation, slope, a linear polynomial in longitude and latitude, boundary segment FE, distance to Mexico City, and observations within 75km of the boundary. Source: *Sumas de Visitas, 1548-1550*.

Table 3: Contemporary Income

	Arcsinh(Household Income) 2000									
	Lat-Long Pol.	Dist. to Bound.	Lat-Long. & Dist. Pol.	Quadratic	Cubic	No capitals	State FE	Trim for Migr.	25km to 75km	Pop. Density
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Mexico</i>	0.190*** (0.0596)	0.146** (0.0610)	0.198*** (0.0596)	0.215*** (0.0636)	0.201*** (0.0645)	0.141** (0.0613)	0.107 (0.133)	0.198*** (0.0595)	0.165* (0.0974)	0.193* (0.116)
Obs.	173,761	173,761	173,761	173,761	173,761	123,230	173,761	157,423	172,762	173,761
Clusters	221	221	221	221	221	212	221	221	207	221

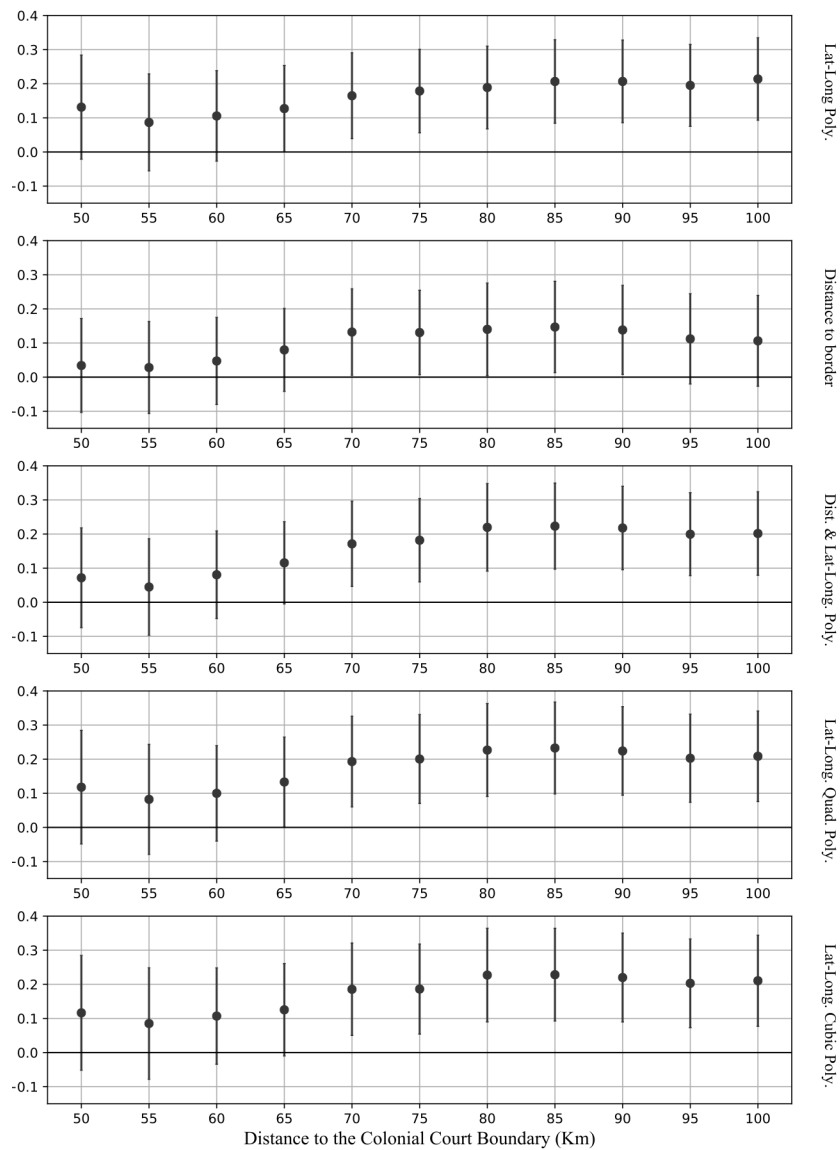
Note: Robust standard errors, clustered at municipality level, are in brackets. *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the household. *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, demographic controls for the number of infants, children, and adults in the household, and observations within 75km of the boundary. Source: 2000 Population Census.

Table 4: Education

	Years of Schooling					
	Cohorts Born in Decades					
	All	>1960	1940	1920	1900	1880
(1)	(2)	(3)	(4)	(5)	(6)	
<i>Mexico</i>	0.710** (0.280)	1.021** (0.440)	1.425*** (0.487)	0.521* (0.280)	0.560** (0.232)	0.396** (0.189)
Obs.	722,431	208,268	120,066	15,807	10,140	3,541
Clusters	221	221	221	208	209	200
Mean	6.867	9.210	6.931	2.582	2.187	1.640

Note: Robust standard errors, clustered at municipality level, are in brackets. *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the individual. *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, demographic controls for age, race and sex, and observations within 75km of the boundary. Source: 1960 and 2000 Population Censuses.

Figure 2: Robustness of Contemporary Income



Note: Each sub-figure plots the point estimates of γ (vertical axis) from equation (1) for different bandwidth values between 50-100 kilometers in 5 km increments (horizontal axis). Thin lines stemming from the point estimates show 95% confidence intervals. The panels in different rows correspond to different polynomial functions for geographic location. Source: 2000 Population Census.

Table 5: Property Rights

	Indigenous Appeals 1561-1821 (1)	Property Rights 1561-1821 (2)	Indigenous Ownership 1561-1821 (3)	Smallholder Ownership 1910 (4)	Household Ownership 2000 (5)
<i>Mexico</i>	1.989** (0.859)	0.421** (0.197)	0.814** (0.349)	0.279** (0.128)	0.0409** (0.0195)
Obs.	191	191	191	440	179,851
Clusters	191	191	191	55	221
Mean	1.974	0.583	0.477	0.234	0.734

Note: Robust standard errors are in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The unit of observation is the colonial village (columns 1-3) and the municipality (columns 4-5). *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include elevation, slope, boundary segment FE, distance to Mexico City, and observations within 100km of the boundary. Sources: *Archivo Nacional de Mexico*, *Biblioteca Pública del Estado de Jalisco*, [Tank de Estrada et al. \(2005\)](#), *Directorio Nacional de Ranchos y Haciendas*, 2000 Population Census.

Table 6: Politics

	Total Rebellions 1821-1877 (1)	Peasant Rebellions 1821-1877 (2)	Political Bosses 1877-1910 (3)	Mexican Revolution 1910-1920 (4)	Political Con. 1960-2000 (5)
<i>Mexico</i>	-0.256* (0.153)	-0.354*** (0.126)	-0.0301** (0.0112)	-0.245*** (0.0907)	-0.0143** (0.0167)
Obs.	208	208	208	208	221
Clusters	208	208	208	208	221
Mean	0.229	0.569	0.449	0.310	0.204

Note: Robust standard errors in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The unit of observation is the municipality. *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include elevation, slope, a linear polynomial in longitude and latitude, boundary segment FE, distances to Mexico City and USA, and observations within 75km of the boundary. Source: *Enciclopedia de Municipios Mexicanos 2005*, [Reina, 1980](#).

Table 7: Government

	Public Employees			Taxation 1989-1991	
	1900	1960	2000	Total Revs.	Property Tax Revs.
	(1)	(2)	(3)	(4)	(5)
<i>Mexico</i>	-0.164+	-2.220	-1.862**	0.0692***	0.0209*
	(0.0855)	(2.133)	(0.861)	(0.0182)	(0.0115)
Obs.	102	187	221	221	221
Clusters	102	187	221	221	221
Mean	0.951	2.389	7.512	0.310	0.204

Note: Robust standard errors in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The unit of observation is the municipality. *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include elevation, slope, a linear polynomial in longitude and latitude, boundary segment FE, distances to Mexico City and USA, and observations within 75km of the boundary. Source: 1900 and 2000 Population Censuses.

Table 8: Labor Markets

	Employment in					
	Agriculture			Manufacturing		
	1900	1960	2000	1900	1960	2000
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Mexico</i>	-0.0336	-0.148*	-0.0402*	0.0406	0.141***	-0.0191
	(0.0234)	(0.0862)	(0.0218)	(0.0618)	(0.0457)	(0.0298)
Obs.	102	14,135	331,781	102	14,135	331,781
Clusters	102	187	221	102	187	221
Mean	0.747	0.245	0.064	0.060	0.262	0.351

Note: Robust standard errors are in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The unit of observation is the municipality (columns 1 and 4) individual (columns 2-3 and 4-5). *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, and observations within 75km of the boundary. Source: [\(INAFED\) 2005](#).

Table 9: Financial Markets

	Banks			Stock Market	
	1900	1960	2000	Mines 1908	Firms 2000
	(1)	(2)	(3)	(4)	(5)
<i>Mexico</i>	0.0788 (0.0805)	0.147 (0.207)	-0.932 (1.135)	0.0762 (0.0506)	-0.000500 (0.00250)
Obs.	102	187	221	221	99,360
Clusters	102	187	221	221	221
Mean	0.0588	0.0637	1,356	0.0212	0.0153

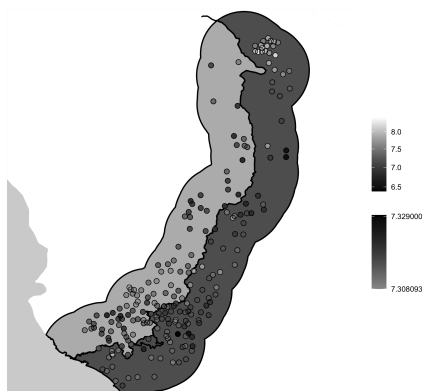
Note: Robust standard errors are in brackets. *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the municipality (columns 1-4) and the firm (column 5). *Mexico* is an indicator variable that equals 1 if located inside the Mexican colonial court and 0 otherwise. All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, and observations within 75km of the boundary. Source: [\(INAFED, 2005\)](#).

Table 10: Social Capital

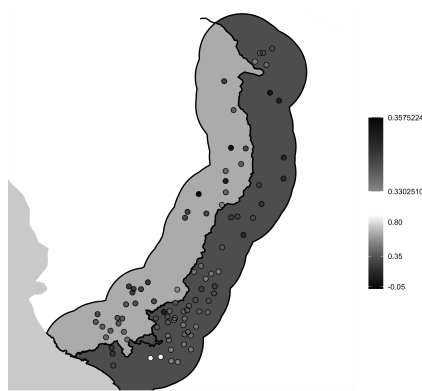
	Community Participation 2000					Public Opinion 2011-2019		
	Planning Comm.	Community Orgs.	Guild Orgs.	Religious Orgs.	Plan. Com. Participates in Budget	Mayor-Comm. Meetings	Trusts Government	Government Is Corrupt
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Mexico</i>	-0.374*** (0.0988)	-0.306** (0.120)	-0.0202 (0.0905)	0.0884 (0.110)	-0.215** (0.107)	-0.320** (0.124)	-0.256*** (0.0636)	0.101*** (0.0307)
Observations	221	221	221	221	221	221	44,857	40,734
Clusters	221	221	221	221	221	221	187	187
Mean	0.659	0.550	0.223	0.365	0.602	0.431	2.40	0.72

Note: Robust standard errors are in brackets. *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the municipality (columns 1-6) and the individual (7-8). *Mexico* is an indicator variable that equals 1 if located inside the more capable Mexico colonial court and 0 otherwise. All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, and observations within 75km of the boundary. Source: [\(INAFED, 2005\)](#).

Figure 3: RD Graphs



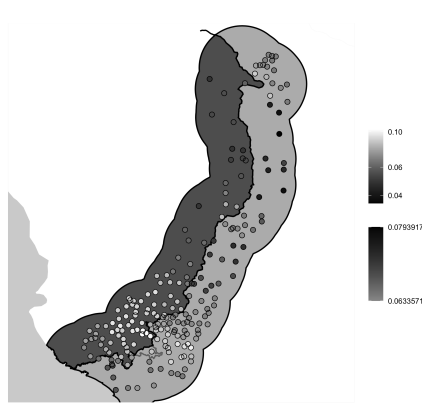
(a) Income, 2000



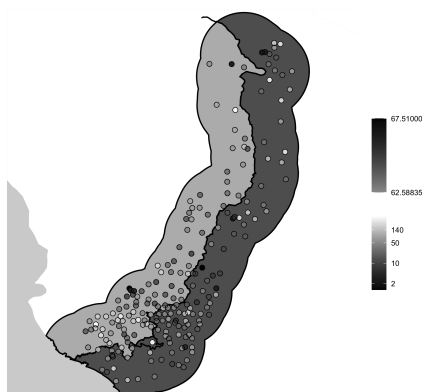
(b) Years of Schooling, 2000



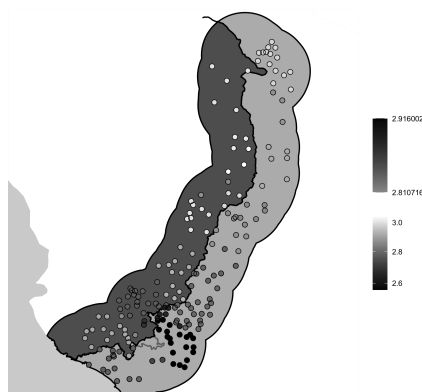
(c) Property Rights, 1561-1821



(d) Political Concentration, 1940-2000



(e) Government, 2000



(f) Agriculture, 2000

Notes: The background shows predicted values, for a finely spaced grid of longitude-latitude coordinates, from a regression of the outcome variable under consideration using equation (1).

Appendices

Appendix A Robustness Checks

Table A.1: Placebo Boundaries

	Shift boundary 100km:			
	North (1)	South (2)	West (3)	East (4)
<i>Mexico</i>	-0.0471 (0.0606)	-0.144 (0.126)	0.0395 (0.882)	0.0448 (0.0762)
Obs.	161,303	186,956	194,693	229,255
Clusters	198	233	225	254

Note: Robust standard errors, clustered at the municipality level, are in brackets. *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the household. *Mexico* is an indicator variable that equals 1 if located inside the Mexican colonial court and 0 otherwise. All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, demographic controls for the number of infants, children, and adults in the household, and observations within 75km of the placebo boundary. Source: Population Census 2000.

Table A.2: Education

	Dist. to Bound. (1)	Lat-Long. & Dist. Pol. (2)	Quadratic (3)	Cubic (4)	No capitals (5)	State FE (6)	Trim for Migr. (7)	25km to 75km (8)	Pop. Density (9)
All	0.682** (0.273)	1.018*** (0.311)	1.075*** (0.331)	1.113*** (0.335)	0.437** (0.221)	0.495 (0.646)	0.763** (0.303)	1.835*** (0.424)	0.778* (0.431)
> 1960	0.760* (0.401)	1.405*** (0.475)	1.452*** (0.493)	1.548*** (0.503)	0.670* (0.351)	0.308 (0.614)	1.010*** (0.458)	2.514*** (0.574)	1.173* (0.669)
1940	0.938** (0.455)	1.936*** (0.506)	2.079*** (0.549)	2.091*** (0.549)	0.708** (0.347)	0.745 (1.008)	1.449*** (0.508)	3.386*** (0.712)	1.537** (0.719)
1920	0.396 (0.245)	0.712** (0.302)	0.689** (0.287)	0.688** (0.285)	0.114 (0.274)	0.476 (0.426)	0.767 (0.674)	1.123*** (0.386)	0.393 (0.412)
1900	0.501** (0.215)	0.794*** (0.271)	0.780*** (0.270)	0.756*** (0.269)	0.231 (0.214)	0.588 (0.461)	0.222 (0.615)	0.976*** (0.347)	0.475 (0.387)
<1880	0.432** (0.194)	0.476** (0.231)	0.315 (0.215)	0.756*** (0.269)	0.0138 (0.151)	0.593* (0.315)	0.998 (1.522)	1.259*** (0.288)	0.372 (0.305)

Note: *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the individual. Each cells reports the coefficient from an RD regression (described in columns) of an educational outcome in Table 4 on *Mexico*, an indicator variable that equals 1 if located inside the Mexican colonial court and 0 otherwise (shown in rows). All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, demographic controls for age, race, and sex, and observations within 75km of the boundary. Robust standard errors are clustered at the municipality level. Source: Population Censuses, 1960 and 2000.

Table A.3: Property Rights

	Dist. to Bound.	Lat-Long. & Dist. Pol.	Quadratic	Cubic	No capitals	25km to 100km	Pop. Density
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Indigenous Appeals	2.489*** (0.915)	2.434*** (0.922)	2.007** (0.987)	2.200** (0.824)	1.799** (0.827)	3.736** (1.782)	1.993** (0.886)
Property Rights	0.448** (0.198)	0.488** (0.195)	0.453** (0.196)	0.485** (0.199)	0.314* (0.183)	0.688* (0.395)	0.392** (0.190)
Contract	0.408 (1.028)	0.436 (1.156)	0.726 (1.310)	0.709 (1.403)	0.708 (0.786)	0.148 (1.419)	0.383 (1.238)
Regulatory	0.0949 (0.0614)	0.0937 (0.0653)	0.0979 (0.680)	0.0795 (0.0725)	0.0673 (0.0527)	0.309 (0.203)	0.0670 (0.122)
Appeals Won	0.906** (0.416)	0.960** (0.385)	0.796** (0.360)	0.753** (0.295)	0.575* (0.317)	0.162** (0.728)	0.857** (0.372)

Note: *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the municipality. Each cells reports the coefficient from an RD regression (described in columns) of an legal dispute outcome in Table 5 on *Mexico*, an indicator variable that equals 1 if located inside the Mexican colonial court and 0 otherwise (shown in rows). All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, and observations within 100km of the boundary. Sources: *Archivo Nacional de Mexico, Biblioteca Pública del Estado de Jalisco*, [Tank de Estrada et al. \(2005\)](#).

Table A.4: Political Concentration

	Dist. to Bound.	Lat-Long. & Dist. Pol.	Quadratic	Cubic	No capitals	25km to 75km	Pop. Density
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All	-0.0294** (0.0144)	-0.0298*** (0.0112)	-0.0268*** (0.0103)	-0.0259** (0.0110)	-0.0283** (0.0112)	-0.0317** (0.0131)	-0.0282** (0.0113)
1970	-0.00942* (0.00539)	-0.0148** (0.00659)	-0.0168** (0.00661)	-0.0134** (0.00656)	-0.0124* (0.00681)	-0.0234* (0.0130)	-0.0119* (0.00678)
1940	-0.0216* (0.0119)	-0.0281** (0.0131)	-0.0286** (0.0134)	-0.0246* (0.0136)	-0.0255* (0.0140)	-0.0440 (0.0204)	-0.0283** (0.133)
1910	-0.0446* (0.0258)	-0.0354** (0.0164)	-0.0327** (0.0158)	-0.0300** (0.0165)	-0.03467** (0.0169)	-0.0398* (0.0213)	-0.0353** (0.0174)
1880	-0.0525** (0.0257)	-0.0508*** (0.0176)	-0.0473*** (0.0167)	-0.0446** (0.0177)	-0.0492*** (0.0174)	-0.0498*** (0.0189)	-0.0493*** (0.0179)

Note: *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the municipality. Each cells reports the coefficient from an RD regression (described in columns) of a political outcome in Table 6 on *Mexico*, an indicator variable that equals 1 if located inside the Mexican colonial court and 0 otherwise (shown in rows). All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, and observations within 75km of the boundary. Source: [INAFED, 2005](#).

Table A.5: Rebellions

	Dist. to Bound.	Lat-Long. & Dist. Pol.	Quadratic	Cubic	No capitals	25km to 75km	Pop. Density
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total Rebellions	-0.364*** (0.125)	-0.264* (0.154)	-0.283* (0.150)	-0.267* (0.155)	-0.260* (0.156)	-0.460** (0.220)	-0.295* (0.154)
Duration (in Years)	-1.155*** (0.349)	-0.936** (0.411)	-0.830** (0.397)	-0.897** (0.428)	-1.010** (0.417)	-1.486** (0.577)	-1.094*** (0.418)
Indian Rebellions	-0.410*** (0.108)	-0.346*** (0.126)	-0.290** (0.124)	-0.271** (0.129)	-0.365*** (0.128)	-0.559*** (0.187)	-0.356*** (0.127)
Property Rights Rebellions	-0.265*** (0.0743)	-0.241*** (0.0908)	-0.198** (0.0887)	-0.232*** (0.0889)	-0.242*** (0.0926)	-0.531*** (0.186)	-0.248*** (0.0938)

Note: *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the municipality. Each cells reports the coefficient from an RD regression (described in columns) of a monopoly of violence outcome in Table 7 on *Mexico*, an indicator variable that equals 1 if located inside the Mexican colonial court and 0 otherwise (shown in rows). All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, and observations within 75km of the boundary. Source: [Reina, 1980](#).

Table A.6: Government

	Dist. to Bound.	Lat-Long. & Dist. Pol.	Quadratic	Cubic	No capitals	25km to 75km	Pop. Density
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Public Employees	-2.269*** (0.800)	-1.751* (0.925)	-2.025** (1.025)	-2.011** (1.017)	-1.835** (0.882)	-2.453 (1.659)	-1.654* (0.880)
Senior Public Employees	-0.374*** (0.134)	-0.350** (0.142)	-0.380** (0.152)	-0.359** (0.152)	-0.331** (0.135)	-0.514** (0.246)	-0.301** (0.131)
% Without Education	-0.161*** (0.049)	-0.149*** (0.0742)	-0.181** (0.0783)	-0.180** (0.0806)	-0.133* (0.0754)	-0.255* (0.152)	-0.151* (0.0782)
% With Graduate Education	0.196*** (0.0537)	0.269*** (0.0658)	0.250*** (0.0964)	0.254*** (0.0728)	0.250*** (0.0722)	0.310** (0.147)	0.245*** (0.0701)
Bureaucratic Specialization	0.848** (0.371)	1.193*** (0.447)	1.157** (0.457)	1.107** (0.453)	0.922** (0.452)	1.662*** (0.619)	0.930** (0.432)
Layers	0.116 (0.104)	0.268** (0.118)	0.264** (0.120)	0.276** (0.121)	0.251** (0.117)	0.200 (0.183)	0.223** (0.117)
Regulations	0.192* (0.100)	0.129 (0.0887)	0.162 (0.102)	0.139 (0.101)	0.141 (0.0885)	0.194* (0.104)	0.125 (0.0867)
Per Capita Spending	-0.0422 (0.0365)	-0.0170 (0.0392)	-0.0238 (0.0408)	-0.0352 (0.0400)	-0.0156 (0.0376)	-0.0883 (0.0754)	-0.00929 (0.0373)
% Public Good Spending	0.110*** (0.0321)	0.0961*** (0.0368)	0.106** (0.0414)	0.107*** (0.0408)	0.0877** (0.0353)	0.102 (0.0665)	0.0898** (0.0353)
% Admin. Spending	-0.0616** (0.0267)	-0.0574 (0.0349)	-0.0608* (0.0358)	-0.0565 (0.0370)	-0.0565* (0.0321)	-0.0416 (0.0399)	-0.0597* (0.0322)

Note: *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the municipality. Each cells reports the coefficient from an RD regression (described in columns) of a bureaucratic outcome in Table 8 on *Mexico*, an indicator variable that equals 1 if located inside the Mexican colonial court and 0 otherwise (shown in rows). All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, and observations within 75km of the boundary. *Encuesta de Desarrollo Municipal*, 2000.

Table A.7: Social Capital

	Dist. to Bound.	Lat-Long. & Dist. Pol.	Quadratic	Cubic	No capitals	25km to 75km	Pop. Density
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Effectiveness (PCA)	0.0736*** (0.0202)	0.1015*** (0.0265)	0.0789*** (0.0259)	0.101*** (0.0252)	0.0950*** (0.0272)	0.0971*** (0.0357)	0.0858*** (0.0281)
Trust	-0.171*** (0.0504)	-0.273*** (0.0671)	-0.234*** (0.0658)	-0.261*** (0.0661)	-0.248*** (0.0683)	-0.214** (0.100)	-0.219*** (0.0677)
Corruption	0.0681*** (0.0226)	0.128*** (0.0316)	0.0960*** (0.0303)	0.0845*** (0.0326)	0.0981*** (0.0303)	0.105** (0.0445)	0.0749** (0.0301)
Performance	-0.167** (0.0455)	-0.216*** (0.0596)	-0.164*** (0.0591)	-0.192*** (0.0591)	-0.192*** (0.0604)	-0.217*** (0.0759)	-0.167*** (0.0623)
Knowledge	0.0188 (0.0178)	0.0543** (0.0253)	0.0572** (0.0261)	0.0465 (0.0286)	0.0429* (0.0240)	0.0312 (0.0340)	0.0433* (0.0256)

Note: *** p<0.01, ** p<0.05, * p<0.1. The unit of observation is the individual. Each cells reports the coefficient from an RD regression (described in columns) of an public opinion outcome in Table 9 on *Mexico*, an indicator variable that equals 1 if located inside the Mexican colonial court and 0 otherwise (shown in rows). All regressions include elevation, slope, boundary segment FE, distances to Mexico City and USA, demographic controls for age, race, and sex, and observations within 75km of the boundary. Robust standard errors are clustered at the municipality level. Source: *Encuesta Nacional de Victimización y Percepción sobre Seguridad Pública*, 2011-2019.

Table A.8: Randomization Inference

Variable	p-value	Variable	p-value
Contemporary Income	0.041	Senior public employees	0.002
Years of Education	0.048	Without Education	0.008
Indigenous Appeals	0.023	With Graduate Education	0.000
Property Rights	0.047	Bureaucratic Specialization	0.001
Contract	0.608	Layers	0.056
Criminal	0.743	Regulations	0.003
Regulatory	0.134	Public Spending	0.528
Appeals Won	0.015	Public Good Spending	0.000
Total Rebellions	0.055	Admin. Spending	0.045
Duration (in Years)	0.000	Effectiveness Index	0.000
Indian Rebellions	0.000	Trust	0.000
Property Rights Rebellions	0.000	Corruption	0.000
Political Dynasties	0.013	Performance	0.000
Public employees	0.009	Knowledge	0.000

Note: The p-values give the share of 1000 absolute placebo coefficients that are larger in magnitude than the absolute coefficient for the actual effect of being on the Mexico colonial court side of the boundary on the outcome under consideration.

Appendix B Data Construction

B.1 *Sumas de Visitas*, 1548-1550

The *Sumas de Visitas* – considered the first statistical study of Spanish America – were a series of written surveys carried out by King Charles V in New Spain in 1548-1550. They contain information for 103 colonial villages close to the boundary, which I manually code and georeference using the equivalences produced by historian [Tank de Estrada et al. \(2005\)](#). Below is a description of each variable in Table 2.

Table A.9: Pretreatment Balance, 1548

Table, Column	Description	Coding
2, 1	Indian population	Log of pop. number
2, 2	Presence of Tarascan indians	=1 if had Tarascan indians
2, 3	Presence of encomiendas	=1 if it had an encomienda
2, 4	Practices agriculture	=1 if practiced agriculture
2, 5	Had gold, silver or salt mining	=1 if had gold or silver mines
2, 6	Collect labor or good & services tributes	=1 indians pay tributes
2, 7	Has a market	=1 if has a market

Source: *Sumas de Visitas*, 1548-1550.

B.2 Colonial Court Records, 1548-1821

I webscrapped a total of 69,966 court records from the online catalogues of the Mexico (54,508 records) and Guadalajara (15,458 records) courts' archives, representing the universe of court appeals in 1549-1821 (*Ramos Civil, Criminal, Indios, Tierras*).⁴⁰ I primarily obtained information on: title, date, location, number of pages, and the archivist's description of each appeal. A simple process was developed to transform Spanish text into data, which was then used to train, test, and select the best performing machine learning (ML) natural language processing (NLP) algorithms for this task. I describe the steps followed below:

1. Feature Extraction: With the help of research assistants, raw text Ω in court records ($i = 1, \dots, n$) was standardized by removing unnecessary words or punctuations (ie: lower case transformation, lemmatization, punctuation, and stopwords removals). Based on the distribution of words in Ω , sets of key words w were selected to identify categories c : indian court appeals, colonial dispute types (ie: property rights, contracting, criminal, and regulatory) and verdicts (see manually annotated examples in the Online Appendix). w_c in Ω were transformed into numeric matrix formats N_c employing other common feature extraction techniques to further reduce

⁴⁰The link for the *Archivo General de la Nación* (AGN) can be found [here](#), while the link for the *Biblioteca Pública del Estado de Jalisco* (BPEJ) can be found [here](#).

data dimensionality: Term Frequency – Inverse Document Frequency (TF-IDF), and Vocabulary Index Tokenization (VIT) for neural networks (see Table A.10).

2. Training and Testing Data: Data was then split into training datasets N_c^{train} – containing research assistants’ manually annotated categorizations of 10%-12% of court records near the boundary (roughly half for both positive and negative cases) –, and testing datasets N_c^{test} for evaluating ML-NLPs’ algorithms performance. We then mapped matrices N_c to predictions \hat{P}_c – variables of interest indicating whether court record i corresponded to particular a colonial dispute type c . We trained and tested popular text and deep-learning algorithms for text classification problems: Support Vector Machine (SVT), Generalized Linear Models (GLM), Random Forest (RF), and Neural Networks (CNN).

3. Algorithm Selection: For each category c , I selected the most accurate classification algorithm using the F1 score – which combines both measures of precision and recall. In general, deep-learning algorithms, such as random forests (RF) and convolutional neural networks (CNN), performed best across all categories (see Table A.10). Table A. 11 documents algorithms were particularly successful in predicting indian appeals (0.95) and colonial dispute types: property rights (0.93), contract (0.92), criminal (0.95), and regulatory (0.96). Verdicts were marginally less so (0.89), but still high enough.

4. Hyperparameter Optimization: After selecting the best performing algorithms, hyperparameters were tuned using two optimization approaches: Grid Search and Randomized Grid Search, both with additional Cross-Validation (see Table A.10).

Table A.10: ML-NLP Summary

Colonial Dispute Type	Feature Extraction	Machine Learning Algorithm	Hyperparameter Optimization
Indigenous	TD-IDF	Random Forest	RGS
Property Rights	VIT	Neural Network	GS
Contract	VIT	Neural Network	GS
Criminal	TD-IDF	Random Forest	RGS
Regulatory	TD-IDF	Neural Network	GS
Appeals Won	VIT	Neural Network	GS

Table A.11: F1 Test Scores

Colonial Dispute Type	% of Court Cases	Mean	S. D	Recall	Precision	F1 Score
Indian	24.7	8.05	30.38	0.946	0.946	0.946
Property Rights	19.6	6.38	27.54	0.964	0.888	0.925
Contract	35.4	11.54	128.23	0.922	0.916	0.919
Criminal	33.0	10.76	152.93	0.921	0.970	0.945
Regulatory	6.8	2.22	20.27	0.934	0.986	0.959
Appeals Won	17.1	5.56	25.30	0.897	0.888	0.893

5. Georeferencing: A similar strategy was followed to georeference 72% of court records within 100km of the boundary to Mexican colonial villages (*pueblos*) (Tank de Estrada et al., 2005).

B.3 Rebellions, 1819-1906

I collected information on Mexican rebellions from historian (Reina, 1980), who built a thorough catalogue for the century following Independence. I digitized her maps and manually coded the nature of rebellions based on descriptions of violent events for 216 municipalities within 100km of the colonial courts' boundary. Below is a description of how each variable in Table 7 was manually coded.

Table A.12: Order Outcomes

Table, Column	Description	Coding
7, 1	Total of rebellions mentioned	Number of rebellions
7, 2	Duration of rebellions (in years)	Average years
7, 3	Indian related rebellions	Number of indian rebellions
7, 4	Property rights related rebellions	Number property rights rebellions

Source: (Reina, 1980).

B.4 Political Concentration, 1876-2020

From the *Enciclopedia de Municipios Mexicanos* (2000), I collected data on the identity of 9,446 mayors that held office from 1880 to today for 216 municipalities within 100km of the colonial courts' boundary. Since *caudillos* historically ruled through extended families, I use the Spanish tradition of assigning two surnames to individuals – the first from the father and second one from the mother – to infer members of the same family. Most politicians have quite uncommon surnames, which is indicative of an elite status.

Table A.13: Example of Political Dynasties

Election Year	Name of Mayors in Cerro de San Pedro, San Luis de Potosí	Family Identifiers
1950	PRIMITIVO LOREDO SÁNCHEZ	1
1953	ARMANDO LOREDO LOREDO	1
1956	ALVARO PATIÑO	2
1959	PRIMITIVO LOREDO SÁNCHEZ	1
.		
1971	ALEJANDRO GUERRERO AGUAYO	4
1974	JESÚS NAVA LOREDO	1, 7
1977	ANDRÉS LOREDO LOREDO	1
1980	ROMÁN OJEDA FLORES	5
.		
1992	JOSE SANTOS NAVA OJEDA	7
1994	CARLOS ESCALANTE HERNÁNDEZ	8
1995	JUAN CARLOS ESCALANTE HERNANDEZ	8
1997	MARCOS NAVA OROCIO	7
2000	MARIA ROSAURA LOREDO LOREDO	1
.		
2012	MARIA ROSAURA LOREDO LOREDO	1
2015	ANGEL DE JESUS NAVA LOREDO	1
2018	MARIA ROSAURA LOREDO LOREDO	1

Source: [\(INAFED, 2005\)](#).

However, I reconstructed family identifiers ignoring common surnames to verify robustness. More specifically, I assigned mayors different family identifiers if they only shared a common surname, such as Hernández. In 2020, the most common surnames in Mexico were Hernández, García, Martínez, López and González, which had population shares of 5.2%, 3.5%, 3.5%, 3.2% and 2.7%, respectively. None of the remaining surnames used to construct the families had a population share larger than 3%.

To measure political dynasties, I follow [\(Ferraz et al., 2022\)](#) and construct a political Herfindahl-Hirschman (HH) index based on the share of terms governed by the same family. Specifically, I compute the HH index, $H_{m,t}$, for municipality m during period t as:

$$H_{m,t} = \sum_i \left(\frac{\text{Number of years family } i \text{ is in power}_{m,t}}{\text{Number of years}_{m,t}} \right)^2 \quad (2)$$

B.5 Contemporary Outcome Data, 2000 - 2019

Table A.14: Economic Prosperity Outcomes

Table, Column	Original Description	Question Responses	Coding
3, 1-9	Household income	Continuous number	Arcsin of household income
3, 8	Have you migrated in the past 5 years?	1=yes, 2=no, 9=missing	2=0, 9=.
4, 1-6	How many years of schooling do you have?	Continuous	Continuous variable coded using interval midpoints
5, 5	Do you have access to electricity?	1=yes, 2=no, 9=missing	9=. ,2=0
5, 3-4	What type of water access do you have?	1-5=water options, 6=no, 9=missing	1-5=1, 6=0, 9=.
5, 1-2	What type of sewage access do you have?	1-4=sewage options, 6=no, 9=missing	1-4=1,5=0, 9=.

Source: Population Censuses, 1960 and 2000.

Table A.15: Bureaucracy and Public Opinion Outcomes

Table, Column	Original Description	Question Responses	Coding
9, 1-2	Number of employees in following categories:	1=senior employees, 2-8=other ranks, 9=total	1 or 9 normalized by 2000 municipal pop.
9, 3-4	Employees with:	1=no education, 2-5=primary to secondary, 6-7=graduate	1 or 6*7 / total employees
9, 5	Has municipal admin. units (finance, public security, etc.):	1=yes, no=0	Sum of admin. units
9, 6	Employee ranks:	1=senior, 2-8=other ranks	Sum of ranks
9, 7	Has municipal regulations (finance, security, etc.):	1=yes, no=0	Sum of regulations
9, 8	Public spending	(in pesos)	Public spending / 2000 municipal pop.
9, 9	Public good spending	(in pesos)	Public good spending / total spending
9, 10	Admin. spending	(in pesos)	Admin. spending / total spending
10, 1	Effectiveness Index		PCA
10, 2	How much do you trust municipal institutions?	1=not much to 4=a lot	Avg of surveys
10, 3	How corrupt are municipal institutions?	1=not much to 4=a lot	Avg of surveys
10, 4	How do municipal institutions perform?	1=not much to 4=a lot	Avg of surveys
10, 5	Do you know municipal institutions?	1=no, 4=very much	Avg of surveys

Source: *Encuesta de Desarrollo Municipal*, 2000; *Encuesta Nacional de Victimización y Percepción de Seguridad Pública*, 2011-2019.

Online Appendix

Key Words for Training and Testing ML-NLP Algorithms

1. Indian Appeals: Includes cases containing an indigenous agent (ie: *cacique*, *pueblo* or indian) that asked anything from the colonial court, colonial state, or another institution. The following text is an example:

Original (MX_41398): SE ORDENA A LA JUSTICIA DE SAN BARTOLOME ATECAMAN, SUJETO, A PAPALPAN DE LA PROVINCIA DE SAYULA, AMPARE A LOS NATURALES EN LA POSICION DEL MONTE, TIERRAS Y AGUAS QUE EXPRESAN. JALISCO.

English: The Justice of San Bartolome Atecaman, adjacent to Papalpan from the province of Sayula, is ordered to protect the indigenous people in the position of mountain, land and water that they express. Jalisco.

To find possible candidates for this category, the following words were used:

Original: 'natural', 'naturales', 'indio', 'indios', 'cacique'

English: The first four words are ways to say native or indigenous, and 'cacique' means indigenous governor.

2. Property Rights: Includes cases involving property right disputes, mostly about lands or territory. Parties involved can be individuals, a colonial village, the Crown, or basically any other agent, claiming land or other assets. An example is the following text:

Original (MX_5844): TLAXCOAPAN SAN PEDRO, PO.- JUAN ANTONIO DE ZAVALA, ADMINISTRADOR DE LA HACIENDA DE SAN NICOLAS DE ULAPA, CONTRA LOS NATURALES DEL PUEBLO DE SANTA MARIA ATENGO, SOBRE POSESION DE TIERRAS. JURIS. HIDALGO.

English: Tlaxcoapan San Pedro, town. Juan Antonio de Zavala, manager of the San Nicolas de Ulapa estate, against the natives from the town of Santa Maria Atengo, about the possession of land. Hidalgo jurisdiction.

To find possible candidates for this category, the following words were used:

Original: 'tierra', 'tierras', 'hacienda', 'haciendas', 'terreno', 'solar', 'solares', 'rancho', 'propiedad'

English: land, lands, estate, estates, terrain, estate, estates, ranch, property

3. Contract: Includes cases related to contract enforcement problems, such as debts, marriages, and/or inheritances. It does not include issues like robbery or murder. The following example can illustrate this:

Original (NG_86091001): Juicio testamentario promovido por María González, vecina de Aguascalientes, en nombre propio y de sus hijos menores con Juan Fernández de Castro por la repartición de los bienes del difunto Esteban de la Huerta, esposo y padre de éstos. Contiene testamento, cuerpo de bienes y Real Provisión.

English: Testamentary trial established by Maria Gonzalez, inhabitant of Aguascalientes, in her own name and the name of her children, against Juan Fernandez de Castro, about the distribution of the possessions of the deceased Esteban de la Huerta, husband and father of the aforementioned. Contains a will, list of possessions and Royal Provision.

To find possible candidates for this category, the following words were used:

Original: 'adulterio', 'arriendo', 'arrendamiento', 'matrimonio', 'remate', 'civil', 'bienes', 'inventario', 'testamento', 'testamentaria', 'concurso', 'acreedores', 'pesos', 'boda', 'dote', 'difunto', 'vender', 'heredero', 'herencia', 'herederos', 'herencias', 'heredera', 'herederas', 'adeudo', 'deuda'

English: affair, rent, renting, marriage, auction, civil, goods, inventory/stock, will, testamentary, competition, lenders, pesos (currency name), wedding, endowment, deceased, sell, heir, inheritance, heirs, inheritances, heir (female), heirs (female), debt, debt

4. Regulatory: This category includes cases in which an agent asks for and/or receives a license or permission. Several types of permissions exist, including but not limited to: carry weapons, perform economic activities, sell properties, tax cuts, or marriages. An example of this can be:

Original (NG_959414029): Pablo Rebanusco, indio cacique y alcalde de barrio de la Soledad del pueblo de Teponaguasco, jurisdicción de Cuquío, solicita a la Real Audiencia que habiendo fallecido 4 tributarios, 2 casados y 2 solteros sin pagar tributo y exigiéndole el corregidor de Cuquío el pago de dichos tributos, se le mande que no le exijan el pago de los mismos.

English: Pablo Rebanusco, indigenous governor and major of the Soledad neighborhood in the town of Teponaguasco, Cuquío jurisdiction, requests to the Royal Hearing that, after the death of four taxpayers, two married and two singles, which did not pay their taxes, and given that the mayor of Cuquío is asking for such taxes, the payment of those taxes should be forgiven.

To find possible candidates for this category, the following words were used:

Original: 'permiso', 'permisos', 'licencia', 'licencias', 'autorización', 'autorización', 'autorizaciones'

English: permission, permissions, license, licenses, authorization, authorization, authorizations

5. Criminal Includes cases referring to criminal behavior, including rape, murder, kidnapping, robbery, or rebellion. The following case is an example of this:

Original (NG_7146002): Ante Don José Miguel Coronado, Capitán de la Tercera Compañía del Cuerpo de Auxiliares de Caballería y Alcalde Ordinario de Primer Voto, se acusa a Pedro Reyes por homicidio como resultado de las heridas y golpes que le infirió a Benito Abad por intento de robo.

English: Before Jose Miguel Coronado, Captain of the Third Company of the Group of Auxiliaries of the Chivalry and Ordinary Major of First Vote, Pedro Reyes is accused of murder as a result of the injuries and blows inflicted on Benito Abad, while attempting a robbery.

To find possible candidates for this category, the following words were used:

Original: 'reo', 'reos', 'sublevación', 'sublevacion', 'ladron', 'ladrón', 'ladrones', 'pleito', 'agresión', 'agravio', 'agravios', 'murió', 'herida', 'heridas', 'robo', 'homicidio', 'rebelde', 'rebelión', 'rebeldes', 'desertor', 'deserción', 'desercion', 'hurto', 'invasión', 'matar', 'arma', 'prohibida', 'armas', 'prohibidas', 'prohibido', 'prohibidos'

English: convicted/offender, convicted/offenders, revolt/rebellion, revolt/rebellion, thief, thief, thieves, dispute, aggression, insult, insults, died, injury, injuries, robbery, homicide, rebel, rebellion, rebels, deserter, desertion, desertion, theft, invasion, kill, weapon, prohibited, weapons, prohibited, prohibited, prohibited

6. Verdicts: Includes cases with a court resolution, where there is a clear argument made by the colonial court. Most cases in the dataset do not have any resolution. An example of such a case is the following:

Original (NG_47751002): Don Alonso Ramon Barturen, vecino del Real de Asientos, presenta argumentos para probar la inocencia de su defendido, Don Felipe Herrecarte, a quien se le acusa de ser concubino de tres prostitutas, ya que las frecuenta aprovechándose de su oficio de amanuense. Finalmente, el Juez Semanero, Don Cecilio Odoardo le concede el indulto y queda en libertad.

English: Alonso Ramon Barturen, inhabitant of the Royal Seats, presents arguments to probe the innocence of his defendant, Felipe Herrecarte, who is accused of being a concubine of three prostitutes because of the visits he gives them due to their work as scribes. Finally, judge Cecilio Odoardo gives him the pardon and releases him.

To find possible candidates for this category, the following words were used:

Original: 'ordeno', 'ordenó', 'ordena', 'ordene', 'condeno', 'condenó', 'condena', 'condene', 'sentenciar', 'sentencio', 'sentenció', 'sentencie', 'sentencia', 'determino', 'determinó', 'determina', 'sentencie', 'amparó', 'amparo', 'ampara', 'ampare', 'concede', 'concedió', 'concedio', 'conceda', 'protege', 'protegio', 'protegió', 'proteja'

English: ordered, ordered, orders, order, condemned, condemned, condemns, condemn, sentence, sentenced, sentenced, sentence, sentences, determined, determined, determines, sentences, protected, protected, protects, protect, concedes, conceded, conceded, concede, protects, protected, protected, protect

7. Appeals Won: Includes cases with verdicts in which an indigenous agent won. Cases in this category lie at the intersection of indigenous appeals and verdicts. An example is the following:

Original (MX_5819): real provision para que en conformidad del auto acordado inserto se ampare a los naturales del pueblo de san francisco sayula en lo que justifiquen estar en actual posesion sin despojar a ninguna persona de pedimento de los susodichos paraje de san gabriel 2 sitios tetepango sayula

English: Real Provision (decree) to protect, according to the agreement reached, the natives from the town of San Francisco, Sayula, in what they claim to be in possession of, without removing any person, as requested by the aforementioned, San Gabriel, 2 sites, Tetepango Sayula.

In the end, all of the categories exhibited over 1800 observations (roughly half for positive cases and half for negative cases) to train deep-learning NLP algorithms. Below is the resulting manual annotation data:

Table OA.1: Annotated Cases for Training ML-NLP algorithms

Category	Positive Cases	Negative Cases	Total Cases
Indian	994	994	1988
Property Rights	804	1080	1884
Contract	1137	784	1921
Criminal	1063	1086	2149
Regulatory	1000	1000	2000
Verdicts	1239	1239	2478