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"Following the Poppy Trail: Causes and Consequences of Mexican Drug Cartels"

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Following the Poppy Trail: Causes and Consequences of Mexican Drug Cartels*

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Abstract

We study the historical origins and consequences of Mexican cartels. We first trace the location of current cartels to the location of Chinese migration at the beginning of the XX century, and document that both events are strongly connected. We then use Chinese presence in 1930 as an instrument for cartel presence today. We find a positive link between cartel presence and good socioeconomic outcomes, such as lower marginalization rates, lower illiteracy rates, higher salaries, and better public services. We also report that municipalities with cartel presence have higher tax revenues and more political competition. Given that Chinese immigration at the end of the century was driven by elements largely exogenous to the drug trade, the link between cartel presence and good socioeconomic outcomes can be interpreted in a causal way. Previous research has shown that the presence of organized crime is associated with bad outcomes at the macro level (Pinotti, 2015) and has deep effects at individual level, making children more likely to be criminals in adulthood (Sviatschi, 2017a; 2017b). Our paper reconciles this previous literature with the fact that drug lords, the leaders of this particular form of organized crime, have great support in the local communities in which they operate.

Keywords: Drug trade; Chinese migration; Mexico; Illegal markets; Organized crime.

JEL classification: N36; O15.

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1. Introduction

Drug cartels have become one of the most pervasive and successful forms of organized crime in the world. They are the center of public policy debate both in the developed and developing world, feature prominently in the press, and contribute to a substantial part of the economic activity of many countries. Because they supply the largest single market in the world (the US), Mexican cartels are particularly notorious. There is relatively large and growing literature on the nature of the mafia (e.g. Gambetta, 1993; Bandiera, 2003; Pinotti, 2015; Dimico et al., 2017; Acemoglu et al., 2017). Yet, save for some recent exhaustive historical accounts (e.g. Astorga, 2015, 2016; Valdés Castellanos, 2013) and solid journalistic pieces (e.g. Chabat, 2005; Grillo, 2011; Wainwright, 2017), the academic literature on drug cartels is both recent and limited (see e.g. Dell, 2015; Dube et al., 2016; Holland and Rios, 2017; Sviatschi, 2017a). We are only beginning to understand the factors fostering the creation, persistence, and consequences of illicit drug trade organization.

This paper contributes to this debate, first studying the historical origins of Mexican cartel's emergence. The distribution of cartel activities in Mexico is, of course, the result of many different factors, some which are better understood than others. We document the claim made by some authors (e.g. Astorga, 2015; Grillo, 2011; Valdés Castellanos, 2013) that one of the elements strongly connected with cartels' rise is the Chinese immigration in Mexico during the early XX century, and that its influence persisted till today. It was really drug prohibition the one that created the illegal market cartels eventually fill, yet the time in which this took place made Chinese migration relevant, particularly the one that settled in Mexico around the turn of the XX century.

During the XIX century many Chinese emigrated and sought refuge in the Americas. For the most part, this flow directed towards the US, which offered the best eco-

nomic perspectives. Yet towards the end of the XIX century the US introduces for the first time restrictions on immigration aimed at Chinese people, many of which end up settling in Mexico. This event is important to understand the onset of drug trade in the region. There are good reasons to believe the Chinese had a comparative advantage in a market that only later Mexicans will take over. On the one hand, a crucial element is that opium was then the main 'recreational' drug (outside alcohol and tobacco) consumed at the time, and its production and consumption was largely unregulated. Chinese migrants brought to the Americas with them the raw material (poppy seeds), the know-how on production and consumption (smoking), and their initial demand for opium, which was locally satisfied. On the other hand, with the restriction on Chinese immigration by the US, many Chinese south of the border began to gather specialized knowledge on an activity that will prove useful with the instruction of drugs prohibition: smuggling Chinese into the US. These two elements, together with the timing of regulation on drugs on the US, create a 'perfect storm'. Chinese immigrants, familiar with smuggling (people) into the American territory, witness the increase in the value of a product they have the know-how and the resources to produce. And this takes place in a context of weak institutionalization following the Mexican revolution. We provide different pieces of evidence that support this narrative, and some other that suggest that part of the well-recorded xenophobia that eventually lead to the expulsion of most Chinese from Mexico was influenced by criminals that wanted to gain control of this lucrative business. Yet perhaps the most interesting feature we are able to show is the degree of persistence of this event: places where more Chinese migrated at the turn of the XX century, nowadays are more likely to show some sort of cartel activity.

Using data at municipality level from Mexico, the paper then explores the consequences of cartel presence on socioeconomic and political outcomes. Formally, we es-

timate the consequences of cartels in a two-stage least squares (2SLS) setup using Chinese presence in 1930 as an excluded instrument. We argue that Chinese presence in 1930 is not correlated with unobservables influencing the outcomes of interest after conditioning on the set of control variables (distance to the US, size of the municipality, population, how suitable is the area for poppy cultivation, precipitation, temperature). Crucially, we also control for German presence in 1930, a variable that captures any remaining unobserved heterogeneity related to immigrants picking the best locations (and/or the locations with highest potential for development), increasing our confidence in this instrumental-variables strategy.

It is well-known that the sensitivity of the 2SLS estimator to violations of the exclusion restriction depends on the strength of the instruments (Angrist and Krueger, 1994; Bound, Jaeger, and Baker, 1995). In our case the presence of Chinese in 1930 is strongly correlated with the potential endogenous regressor (the presence of cartels now-days), with an F-statistics from the first stage equal to 90. Still, we conduct inference that is consistent with instruments being only plausibly exogenous (Conley et al., 2012) and all results remain significant under a wide range of assumptions.

Our main finding is that cartel presence is strongly associated to good socioeconomic outcomes, such as lower marginalization rates, lower illiteracy rates, higher salaries, and better public services. We also report that cartel presence is associated to higher tax revenues and more political competition.

Our work relates to at least two strands of literature. First, our paper is connected with the literature on the historical origins of organized crime. Many studies look into the origins of Italian mafia, with a focus on the presence of natural resources such as mines (Buonnano et al., 2015) or lemons (Dimico et al., 2017) and weak institutions (Pinotti, 2015; Acemoglu et al., 2017). In our case, weak institutions do play a role, but

it is the creation of the illegal market combined with the presence of individuals with a comparative advantage in that market that creates the activity.

Second, our paper is related to the literature on the consequences of organized crime. At a macro level, Pinotti (2015) provides cross-country evidence that organized crime is associated with significantly lower levels of economic output. At a micro level, Sviatschi (2017a) documents that children growing up in regions of Peru with illegal narco activity are more likely to become criminals in adulthood. In a related paper, Sviatschi (2017b) reports evidence that children in El Salvador exposed to gangs in their regions are more likely to be involved in gang related crimes when they are adults. At the local level Acemoglu et al. (2017) document a negative short-term impact of mafia present on literacy and public goods provision, and a negative long-term impact on political competition. These negative impacts of mafia present at the local level are in sharp contrast to our findings, and can be explained by the different nature of the criminal organizations in Italy and Mexico. While mafias in Italy mainly sell protection, a non-tradable good, and their operation generates income redistribution at the local level (with the conflicts associated to it), drug cartels in Mexico commercialize a tradable good that generates net income in the region they operate.

All results in the previous literature are difficult to reconcile with the well-known support some drug kingpins have in local communities. In this study we provide evidence that suggests the presence of drug cartels is compensated by higher resources that allow local communities to decrease their level of marginalization.

2. Illegal drug trade

Like most types of crime, organized crime has many negative effects on society. Extortion and violence, two of the basic trademarks mafias, are actually *designed* to upset individuals and disturb the relationship they have between them. And, along with

substantial social and psychological costs, organized crime has considerable economic costs. These are largely direct costs of the criminal activity, but there are also less direct costs, such as increased corruption, negative externalities of illicit goods (e.g. increased medical expenses due to drug rehabilitation), or forgone income from legitimate economic activity deterred by the criminal organization (Drelichman, 2003). The general unobservable nature of criminal behavior and some of these indirect costs, together with potential issues of reverse causality, makes it hard to confidently state any direct influence on economic activity. Yet the little evidence so far is aligned with the idea that the presence of organized crime has a general negative impact on development. Pinotti (2015), for example, evaluated cross-country data using survey answers to create a measure of organized crime. Controlling for a series of covariates to account for geography, initial conditions, and institutions, he finds that a one standard deviation increase in organized crime appears to be associated with a 30% fall in real GDP per capita.

Nowadays, illicit drugs trade represents a sizeable part of global crime and drug cartels –a notorious form of organized crime– play a key role in their functioning. Estimates are inevitably imprecise, but the UNODC (2011) suggests that at the beginning of the 2000s drugs accounted for 20% of all crime proceeds and 50% of organized crime proceeds, about 0.9% of global GDP (circa US$ 322 billions). The consumption of largely addictive, illegal substances is widespread, especially in rich economies. An estimate for 2013 (UNODC, 2015) suggests that at least 3% of the world population had consumed some form of drug in the previous year. Good part of the production of drugs happens in poor countries, but the lion's share of this consumption takes place in the developed world, mainly North America (44%) and Europe (33%). Although synthetic drugs (such as methamphetamines) are now the fastest growing sector of the market, the largest part of this consumption is still concentrated on marihuana and the other plant-

based drugs that fueled the rise of drug cartels in the last century. And because they have been the main supply of illicit drugs for the United States, the single largest market, Mexican cartels are particularly infamous.

Featuring prominently in the press (as well as in fiction and non-fiction books, movies, documentaries, and TV shows), Mexican cartels have become a synonym of violence and crime. Although recently their business seems to have expanded to extortion (Guerrero Gutiérrez, 2011) and even legal commerce (Wainwright, 2017), most of their activities involve the production and/or trade of illicit drugs into the US. Nowadays, these are largely concentrated marihuana, cocaine, and meth. Yet the growth and consolidation of Mexican drug trafficking organizations, colloquially known as 'cartels',[1] took place in the middle and second part of the XX century (Medel and Thoumi, 2014), when opiates and marihuana dominated the market. Both external and internal factors fostered their initial development. On the one hand, the general international movement towards prohibition, but especially that of the US, opened profitable opportunities for illicit trade. On the other hand, Mexico offered a suitable environment for the rise of this activity. This was not only because of its geography and institutional characteristics. Mexico also counted with the presence of small community of immigrants that, we will argue, had a comparative advantage in the production, commercialization and trafficking of opium, the drug of choice at the time of the prohibition: the Chinese.

Regulating narcotics

The proximate cause of cartels appearance is –of course– prohibition. Whereas different forms of organized crime appear in history (Fijnaut, 2014), drug trafficking organizations appeared with the first attempts to regulate or entirely ban the production

[1] As pointed out by some authors (e.g. Dell, 2015: 1745), the term 'cartel' to refer to drug trafficking organizations is not entirely accurate, as these firms rarely form stable coalitions that allow them to behave as such. We are nevertheless using the two terms indistinctively.

or consumption of certain narcotics. Many states around the world had occasionally outlawed substances seen as potentially harmful throughout history;[2] but restrictions as we know them today began to form in the late XIX century mostly around opium, arguably the most widespread recreational drug (after alcohol and tobacco) at the time.

The opium poppy (*papaver somniferum*) had been cultivated at least since 3,400 BC and Sumerians already knew that the consumption of its latex (opium) had narcotic effects.[3] Since then, opium has been used in different forms for medical, religious or recreational purposes, and produced and traded around the world. Evidence is fragmentary, yet it seems that between the XVI and XVII centuries the notion of smoking the drug spreads (probably linked to the introduction of tobacco smoking). The practice, which increases drug's addiction potential, proved popular in China (UNDOC, 2008: 173). Faced with the first epidemics of consumption, Chinese authorities tried to restrict the expansion of the drug, but Western commercial interests intruded. With opium, the West had found a good Chinese were willing to trade for the many things China had to offer, like silk and porcelain. The attempts of the Chinese Emperor to established stricter rules to control the opium trade created tensions with Britain, which had the monopoly on opium cultivation in Bengal. The success of latter in the Opium Wars made opium a staple in Chinese society (Yangwen, 2005).

While the events surrounding the Chinese crisis and the expansion of opium trade certainly played a role in the increasing public concern with the drug, a series of scientific discoveries in the XIX century created further anxieties. In 1803, the German pharmacist Friedrich Sertürner discovers that by dissolving opium in acid and neutraliz-

[2] E.g. Islamic Sharia law prohibited alcohol and other intoxicants such as hashish; in the XVII century there a series of attempts in Europe and the Ottoman Empire to forbid coffee; and Qing Imperial China tried to restrict the trade of opium.

[3] To obtain opium, farmers typically make incisions on the immature pods containing the seeds, which produce a milky substance. This then dries to become a brownish gum, which is collected and the processed.

ing it with ammonia one can obtain its active ingredient, morphine. That first synthetic opioid had already increased the strength of the narcotic, but forty years later, Alexander Wood –a Scottish physician– finds out that injecting morphine into patients proves to be more effective (and stronger) than drinking it. Also, towards the end of the century, we have yet another development that increases the potency of the drug: the discovery of heroin, which begins to be marketed by Bayer.[4] Both the expansion of the opium trade and the strengthened versions of the drug coming out of the opium poppy latex probably contributed to the spread of opium. It is hard to assess the extent to which drugs were consumed in the XIX century, but one way is to look into the references in the media. Figure 1 shows the proportion of references to any non-alcoholic drug in Mexican news in the XIX and early XX centuries, as collected by Campos (2012). From more than a dozen newspapers he singles out 'raw hits'. Not surprisingly, the lion's share of these mentions goes to alcohol in one form or another. Although marihuana already appears and is becoming more popular as time goes by, of all non-alcoholic drugs mentioned, opium and morphine make up for most of the references. Of course, this is not a necessary indication that one drug was more present than other, as ubiquity of presence could lead to lack of mentioning, but further evidence suggests this is the case (Campos, 2012).

[Insert Figure 1 here]

Still, by the turn of the century, opium and other substances we recognize as narcotics today (cannabis and coca) were for the most part legal in both the US and Mexico. According to Brown (2002: 641) "[In the United States] there were no restrictions on importation other than tariff; opium and morphine were cheap and readily available without prescription, particularly as ingredients in countless multi-drug patent medi-

[4] Diamorphine was first synthesized in 1874 by an English chemist named C. R. Alder Wright, but did not lead to further developments. Only in 1898, Felix Hoffmann, a German chemist working for Bayer synthesized it again, and Bayer began to commercialize it.

cines that were widely advertised and used by people of all groups and classes as cures for every conceived ailment."

While their recreational use appears to have been expanding, and concerns about its abuse were slowly increasing,[5] plant-based drugs were extensively used for medical purposes: diverse 'baby-soothing' syrups (used to calm down babies when teething) contained some amount of opium; morphine was used to treat ailments of different nature (injuries, rheumatism, etc.); respected companies like Bayer marketed heroin as a cough medicine; marihuana cigarettes were used to treat asthma; coca wines (that combined wine with cocaine) such as Vin Mariani and French Wine Coca (the precursor of Coca-Cola) were promoted as having diverse medical properties. But governments' attitude towards the drug begins to change, mostly driven by two reasons (van Ours, 2003): new medicines to alleviate pain were introduced, reducing the need to rely upon opium and opiates; and the pressure of the anti-opium movement that followed the increased realization of the addictive nature of the drug. Regarding the second, initial attempts to regulate production, distribution or consumption (typically limiting the access to dens or penalizing the selling of opium) were localized, and in many cases not entirely enforced (Brown, 2002: 640-641). Systematic attempts had to wait to the early XX century, as detailed in the timeline of Figure 2 for the case of Mexico and the US. American process of regulation is particularly relevant for our story. The first national law addressing the issue was the Pure Food and Drug Act of 1906, which required narcotics to be listed on the labels of patent medicines. In 1909 the US prohibited the import of opium for non-medical purposes, and then banned altogether opium that has been prepared for

[5] Referring to the US, for example, in his book on opium smoking in America and China, the medical doctor Harry H. Kane claimed that "[t]he first white man who smoked opium in America […] was in California, in 1868. […] the practice spread rapidly and quietly among […] gamblers and prostitutes until the later part of 1875, at which time the authorities became cognizant of the fact […] that many women and young girls, as also young men of respectable family, were being induced to visit the dens…" (Kane, 1882: 1). There is then considerable evidence that in the last quarter of the XIX century opium dens begin to appear in different cities of the United Sates, until by the 1890s there where common in the territory.

smoking. In February of that same year takes place the first international conference to discuss the world's narcotics problem at Shanghai, later known as the 'Opium Commission', which prepared the ground for the first international drug treaty in 1912, the Opium Convention of the Hague (UNODC, 2008). Yet the legislation that really marks the beginning of the war on drugs is the Hamilton Act of 1914, which regulated and taxed the production, importation, and distribution of opiates and coca products. Marihuana had to wait a couple of decades, when the federal Marihuana Tax Act of 1937 effectively made possession or transfer of marihuana illegal throughout the US.

[Insert Figure 2 here]

Regulation lagged somewhat behind on the other side of the Rio Grande, opening a window of opportunity for producers and traffickers (Valdés Castellanos, 2013). Mexico joins the Hague Convention, ratifying the treaties proposed. It is ahead of the United States on marihuana, as in 1920 the first regulations appear forbidding its cultivation and commercialization. But opium had to wait a few years more. Two presidential decrees, in 1923 and 1925, impose a series of requirements for the importation of opium, morphine, cocaine, and other drugs, and forbid the importation of opium prepared for smoking, marihuana, and heroin (Astorga, 2016). Only in 1926 the restriction initially put on marihuana is extended to poppies, turning producers, traders, and consumers of opium into criminals.

More than a decade passed between the Harrison Act and the Mexican law restricting economic activities on opium, creating an opportunity for entrepreneurial Mexicans wanting to profit from the natural increase in price on the other side of the frontier. Certainly, part of this increase in price is really coming from increases in costs (Miron, 2003), the most important being the wage premium to compensate employees for the risk of engaging in illicit activity (and eventual consequences if caught), the po-

tential seizure costs of both capital (physical and financial assets used in the production of drugs) and goods (illicit substances). But if at least part of the activity is legal, the increase in costs was limited, creating a comparative advantage for Mexican producers.

Mexico's comparative advantages

Drug trafficking organizations share many elements with other forms of organized crime, like mafias. Unsurprisingly, these kinds of enterprises blossom under weak state institutions. Whereas mafias typically replace the state in certain contexts (Gambetta, 1993; Buonanno et al., 2015), cartels profit from states with limited capability to regulate the illicit market or enforce those regulations. Mexico at the beginning of the XX century was certainly not a beacon of institutional stability. The fall of the Porfiriato and the subsequent Revolution in the 1910s created a political turmoil that took many years to settle, providing a suitable environment for criminal activities.

Neither cannabis nor the opium poppy is native of Mexico, but sometime in the XIX century they were introduced and both proved to be well suited for the region.[6] Another geographical advantage, of course, is proximity to the American market.

Different illicit substances impose different challenges for producers, distributors, and consumers, which have led to different market structures (Reuter, 2014), but two elements are common. One is the capacity to generate or obtain the illicit substance. In the early stages of development, in a period in which illicit drugs were largely consisting of plant-based drugs, besides geography, having the know-how on how to cultivate and extract the substance is important. The other is the capacity to distribute it in a market where the substance is regulated or entirely forbidden. In the discussion below we show that the Chinese community that had arrived to the US escaping poor economic and political conditions in China, and then is eventually pushed away from the US and

[6] The opium poppy was first identified among the flora of Sinaloa around 1886, in a Mexican government study run by Velasco (1889: 88).

end up in Mexico, had human capital that made them particularly suitable to enter in the business of producing (in Mexico) and distributing (in the US) drugs.

3. The Chinese connection

Most of the literature on the historical roots of the Mexican cartels (e.g. Astorga, 2015; Grillo, 2011; Osorno, 2011; Valdés Castellanos, 2013) suggests Chinese communities contributed to the first drug trades by bringing with them the tradition of opium consumption. Here is one typical example: "Coolie laborers traveled on steamships to Sinaloa from the 1860s to toil on railroads and sweat in mine shafts. As was their custom, Chinese immigrants brought opium poppies, gum and seeds on their long journey over the Pacific" (Grillo, 2011: 25-26).

Chinese have been migrating to 'Da Lusong', as Mexico came to be known, since the XVII century, but it was not until the XIX century that this migration became large in scale.

A turning point in this process of migration came when the United States passes the Chinese Exclusion Act of 1882. In the increasingly globalized economy of the XIX century, the US was among the first to introduce restriction to the access of immigrants. Why this was the case is still debated (see e.g. Timmer and Williamson, 1998), but regulations in the second part of the century begin to reflect a clear intent of making it difficult for certain immigrants to legally enter the country (Hutchinson, 1981).[7] Many of these Chinese find their way to Mexico in search of economic opportunities. Figure 3 shows the evolution of Chinese population in Mexico for the period from 1895 to 1970. The first quarter of the twentieth century was the period with the most intensive immigration, and by 1926 the Chinese was the second largest resident foreign ethnic community in Mexico after the Spanish (Romero, 2010).

[7] The 1860s see some of the first restrictions on the coolie trade, and in 1875 the Immigration Act establishes the notion of "excludable" classes and prohibits, among others, the importation of Chinese women for prostitution.

[Insert Figure 3 here]

Some of the Chinese inflow concentrated in the north of the country, near the US Border. And indeed, as the quote of Grillo suggests, the first Chinese to enter Mexico in the period seem to have been directed to the construction of railways and the works in the mines,[8] but quickly began to fill other jobs, achieving a high degree of economic success. In the early XX century one could see Chinese as agricultural laborers, independent farmers, and skilled workers, but mainly as merchants and shopkeepers. Figure 4, which shows the different occupations of Chinese in 1919 in the state of Sonora, yet representative of other states, makes this point very clearly. Many Chinese seem to have been able to transition from laborers to merchants, and by the 1920s they have achieved some sort of monopoly over the grocery and dry goods trade in northern Mexico (Romero, 2010: 2).

[Insert Figure 4 here]

There are then reasons to believe a proportion of the Chinese entering Mexico were attracted by the local economic opportunities, while another proportion were simply diverted south of the Rio Grande by the American Exclusion Act of 1882. Yet there is also evidence that some Chinese went to Mexico with the aim of illegally entering the US. As drug prohibition inevitably generates a market for illegal narcotics trade, immigration restriction opens the possibility of a market for people smuggling: "As a way of circumventing the Chinese exclusion laws of the United States, enterprising Chinese merchants and capitalists created a highly sophisticated transnational immigrant smuggling network involving representatives in China, Mexico, Cuba and various cities throughout the United States, including Tucson, San Diego, El Paso, New York, Boston, New Orleans, and San Francisco" (Romero, 2010: 3).

[8] There is evidence, for example, that in the late 1880s the Anglo American Mining Co. hired a substantial amount of Chinese people, and that by 1889 they had about 150 of them (Hu-DeHart, 2003: fn. 2).

These networks were organized with the collaboration of Chinese merchants on both sides of the border, and developed a series of schemes and techniques to smuggle compatriots into the US, making Chinese pioneers in the illegal Mexico-US migration business.

The Chinese advantage

There are several accounts on the Chinese diaspora reaching the US and Mexico (e.g. Romero, 2010; Peña Delgado, 2012), but in none of them is opium identified as a motivation to emigrate. Both the tradition of opium smoking carried by the migrants and the ubiquity of opium dens in Chinese settlements appear in these accounts, but this never seems to be the reason behind the movement. Opium consumption was beginning to generate concerns in the society, and hence was sometimes frowned-upon, but at the time it was largely legal and not readily available in North America.[9] It seems Chinese maintained these tradition despite being in North America, not because they went there.

But when regulation changed regarding the production and trade of narcotics in the US, increasing the value of opium and opening the opportunity for priced business, the Chinese community did have a comparative advantage in it. As discussed above, the market of illegal drugs requires two important skills to develop: one is the ability to produce (or being able to obtain) the illicit goods, and the other the capabilities to distribute them. Chinese brought with them the habit of smoking opium, the opium seeds, and the social tradition of the opium den. They knew how to cultivate the opium poppy, extract the latex and process it to make it suitable for consumption. They basically had physical and human capital to produce a now more profitable good. Along with that, the specialization of Chinese in the commercial sector added an element that facilitated commercialization. As owners of small commerce or street vendors of different prod-

[9] In the first decade of the 1900s the United States imported more than 200 metric tons of raw opium per year.

ucts, they were familiar with a trade that facilitated retailing, allowing them to easily reach the consumers.

Of course, when the good is illegal an additional layer of complexity is added, as this commercialization has to go largely unnoticed by the authorities. On this the Chinese community, which had been engaging in illegal smuggling of people into the US at least since the 1880s, also had an advantage, not only on know-how (skills transferable from people-smuggling to drugs-smuggling), but also in the form of an already developed network of contacts on both side of the frontier.[10]

Was drug trade competition breeding xenophobia?

A topic that any historian of the Chinese immigration in Mexico cannot evade is the anti-Chinese movement of the post-revolutionary era (e.g. Romano, 2010; Peña Delgado, 2012; Schiavone Camacho, 2012). Mexican xenophobia manifested in various ways, from looting and boycotts, to protests, to racist propaganda, and legislation. Nowhere was this more extreme than in Sonora, where it was banned the marriages between Mexican and Chinese, where segregated neighborhoods were created, and where the whole Chinese population was virtually expelled in 1931. It has been argued that the great economic success of Chinese stimulated part of the sentiment driving this movement (e.g. Romero, 2010). An issue that has been less explored, yet appears in a series of references, is the fact that some of the acts against this population was carried out by criminals who probably wanted to take over the market partly controlled by Chinese. Grillo, for example, says that "Criminals also whipped up racism. In 1933, the American consul in Ensenada sent a report to Washington about the rising anti-Chinese tide. He cited an informant, a Mandarin-speaking American saying that known villains were

[10] Some recent accounts suggest that nowadays many drug cartels have begun to diversify into new markets, one of them being smuggling people into the US (Wainwright, 2016: Ch. 6). Wainwright's account highlights how increases in enforcement of migration restrictions are actually increasing the cost of '*coyotes*' to smuggle people, and the cartels are taking over. It is interesting to see that exactly the opposite appears to have been the case a century ago.

among the key anti-Chinese activists. Among them was a smuggler surnamed Segovia, who was moving round the states of Sonora, Sinaloa, and Baja California putting money into violent anti-Chinese groups" (Grillo, 2011: 32).

That same American consul, A. Smale, further suggested that the origin of this racist movement in Sonora and Sinaloa really came from Mexicans to whom Chinese have taught how to cultivate poppies and extract opium who wanted to take over the business (Astorga, 2015). It is also interesting to note that the movement indeed gains strength in the 1920s, precisely when prohibition takes place in the US.

It is then plausible that part of the outburst of xenophobia in the 1920s and 1930s represent the first expressions of what was going to become a regular pattern of violence aimed at getting the drugs market (Rasmussen et al. 1993; Rios, 2012), or the increase in violence associated with the creation of illegal markets (Chimeli and Soares, 2017). In any case, actions against Chinese were widespread during the period, and the sharp decline seen afterwards is largely attributed to the organized anti-Chinese movements, especially in Sonora, Sinaloa, Nayarit, and Tamaulipas, aiming at destroying Chinese monopolies (Romero, 2010: 56), not only on legal markets.

Nevertheless, if the presence of Chinese migration determined the location of the first drug trafficking organization, are there reasons to believe these affected todays' presence? That is, did this initial immigration determine the current location of cartels? And, finally, does cartel presence have any impact on current outcomes? All these questions are explored in the following sections.

4. Data

We use data that come from many different sources. Demographic data on Chinese population was obtained from original records of the 1930 census. This was the first Mexican census to be processed centrally, and recognized to be one of Mexico best

planned and executed censuses. Although most of the material from the Federal District was lost, most of the other original records actually exist and were digitalized by Ancestry.com, covering around 80% of the total population of the country at the time. Since most of the missing records are in Distrito Federal (with a population of more than 1 million people), the coverage of the rest of the country is relatively high (Mexico had 16 million people in 1930, and the digitalized files contain around 13 million records). There are no reasons to believe any of these losses are systematic. In all empirical analyses we exclude Distrito Federal from the estimates.

The original documents record for every individual, among other things, place of birth and residence. We extracted all records indicating China as the place of birth. Residence was defined by town, municipality, and state. Unfortunately, municipalities have drastically changed shape in the last century (Commons, 2002): in 1930 the census recorded 2,194 municipalities, whereas now there are 2,456. These are not only 262 additional administrative units appearing from the split of original municipalities; there were also many changes in borders. To our knowledge, there is no clear match between the political division back then, and the one we have today. But since we have information on town and state of residence, and these in general did not change, we matched that information to the current map of Mexican municipalities for every person recorded to have been born in China to obtain the 1930 Chinese population per current municipality.

The distribution of Chinese population at municipality level can be seen in Figure 5. The maximum population of Chinese was 1,183, in the municipality of Tampico, in the state of Tamaulipas.

[Insert Figure 5 here]

Since the relevant element for our argument is the presence of Chinese in a given municipality, we created a new variable, Chinese presence, which takes the value one if the Chinese population in the municipality is greater than one. Although we take this as our preferred measure of the presence of a Chinese community in a municipality, we show in Section 5 that all results are robust to many alternative definitions.

We also collected data on German population in 1930, the third largest group of overseas immigrants at that time (only behind Chinese and Spaniards), which we use to capture unobserved heterogeneity related to immigrants picking the best locations. To construct German population per current municipality we used the same sources and followed the same procedure as with Chinese. Then, again as we did with Chinese, we constructed the variable German presence as a dummy variable that takes the value one if more than one Germans in the municipality, and zero otherwise.

Identifying cartel presence is, of course, far from straightforward. Eduardo Guerrero, a scholar very active with the debate on organized crime in Mexico has produced an extensive survey that provides information on the activity of different cartels, but his work is at state level (Guerrero, 2011). For this study, we rely upon three different sources of data regarding cartel activity at municipality level. First, there is solid but confidential dataset, provided to us by the Observatorio de Desarrollo y Promoción Social from Mexico,[11] that through diverse sources identified signs of cartel presence in all Mexican municipalities. This information was recorded as a dummy variable that takes the value one if there is evidence of a cartel activity in a municipality, and zero otherwise, and represents our preferred measure, Cartel presence. Second, we also use information coming from the number of drug-related homicides collected by the Mexican government between December 2006 and December 2010, which has been used before

[11] https://www.odp.social.

to study cartel activity (e.g. Dell, 2015; Dube et al., 2016; Holland and Ríos, 2017). Based upon police reports, during this period a committee with representatives of the government met regularly to classify murders as drug-related if there was any evidence that victim or perpetrator (or both) were involved in drug trade. Since we are interested in general cartel activity and not intensity of drug-related violence, with this information we constructed the dummy variable Cartel presence 2006-2010 that takes the value one if in a municipality there has been at least one drug-related murder in the period the variable was recorded. Finally, we rely on a third source for measuring cartel activity at the municipality level that comes from web content. These data, constructed by Coscia and Rios (2017), track the presence at the municipality level of ten criminal organizations in the period 1991 to 2010. The dataset is constructed by using a search algorithm that codes a cartel as being present in a municipality if the frequency of hits for a particular municipality-organization pair exceeds a given threshold. From this dataset we use two variables: Cartel presence 2005 and Cartel presence 2010, which are binary variables that take the value one if there is cartel presence in the municipality and zero otherwise. In particular, this new dataset is relevant since it provides information on cartel activity before the presidency of Felipe Calderón, which marked by the ignition of the Mexican Drug War.[12] As shown in Table 1, which contains the summary statistics of our sample of 2,440 municipalities,[13] there is more cartel presence in 2010 or 2011 than in 2005. According to Coscia and Rios (2017), even though many new drug organizations have only been in operation since 2007, they tend to operate in municipalities where other criminal organizations had at some time been present but were abandoned. Pairwise cor-

[12] Felipe de Jesús Calderón Hinojosa served as President of Mexico from 1 December 2006, to 30 November 2012.
[13] The 16 municipalities of the Federal district were excluded.

relation between the four measures of cartel presence is positive and significantly different from zero.[14]

[Insert Table 1 here]

Geographical variables were available from the Instituto Nacional de Estadística y Geografía (INEGI) in Mexico. The set of geographical variables include minimum and maximum altitude, average, minimum, and maximum temperature, average precipitations, surface, distance to US border (the distance from the centroid of the municipality to US border), and population. Since there are no records on 1930 municipal population in today's political division, we use population in 2015.

In addition, using information from the Food and Agriculture Organization (FAO) we constructed a dummy variable that takes the value one for those municipality that have weather conditions that makes them suitable for poppy cultivation. For instance, according to FAO, *Papaver somniferum* (poppy) needs temperatures that are between a minimum of 3 degrees Celsius and 28 degrees Celsius.[15] So any municipality reporting a maximum above 28 degrees or a minimum below 3 degrees is defined as not suitable for poppy cultivation.

We have two measures for the effective number of political parties in the 2015 election: the Laakso and Taagepera index and the Molinar index. These are measures that count parties and, at the same time, weight the count by their relative strength. The Molinar index is an alternative to the Laakso and Taagepera index, and gives special weight to the largest party. These political outcome variables were provided by the Observatorio de Desarrollo y Promoción Social from Mexico.

[14] All results mentioned but not shown are available from the authors upon request.
[15] See http://ecocrop.fao.org/ecocrop/srv/en/dataSheet?id=8296.

Finally, we also have data on per capita tax revenue at the municipality level, in 2015, also provided by the Observatorio de Desarrollo y Promoción Social from Mexico.

Our main outcome of interest is Marginalization, an index constructed from various municipal socioeconomic indicators provided by the Consejo Nacional de Población from Mexico (CONAPO). By construction, the index has a zero mean and a standard deviation equal to one. Marginalization index includes 9 socioeconomic indicators: Illiteracy (percentage of illiterate at age 15), Without primary (percentage of population at age 15 without primary school), Without toilet (percentage of population without toilet), Without electricity (percentage of population without access to electricity network), Without water (percentage of population without access to water network), Overcrowding (percentage of households with some level of overcrowding), Earthen floor (percentage of occupants in dwellings with an earthen floor), Small localities (percentage of population in localities with less than 5,000 inhabitants), and Low salary (percentage of labor force earning less than 2 minimum salaries). Table 2 presents summary statistics for the components of the marginalization index.

[Insert Table 2 here]

Table 3 reports conditional correlations between the variable Chinese presence and the set of covariates. Chinese presence in 1930 is orthogonal to most geographical variables, including Suitability for poppy cultivation and Distance to US. Chinese presence is significantly correlated with Surface and Population, and the estimated coefficients indicate there are more Chinese people in the bigger and more populated municipalities. Finally, and as expected, Chinese presence is positively correlated with German presence. Most important, all results reported in Section 5 hold when we control for all these variables.

[Insert Table 3 here]

5. Econometric model and results

A model for cartel presence

We are interested in estimating the causal effect of Chinese population on the presence of cartels in Mexico. We estimate the following regression model:

$$Cartel\ Presence_{is} = \beta\ Chinese\ Presence_{is} + \gamma\ X_{is} + \mu_s + \varepsilon_{is} \quad (1)$$

where *i* indexes municipalities and *s* indexes state, β is the parameter of interest, X_{is} is the set of municipality-level control variables, μ_s are state fixed effects, and ε_{is} is an error term.

Since the distribution of Chinese along the Mexican territory is not random, we include state fixed effects and municipality-level controls to make sure that differences in Chinese presence are not picking up the effects of some other unobserved characteristics. This strategy controls for unobservables that are common to all municipalities in the same state. This is especially relevant since most political decisions are made at the state level. Thus, we rely on the assumption that municipalities in the same state face similar institutional and contextual conditions. In addition, to account for possible correlations between municipalities from the same state, all standard errors are clustered at the state level.

Table 4 reports Ordinary Least Squares (OLS) estimates of different specifications of Equation (1). In Column (1) we report estimates on the relationship between Cartel presence and Chinese presence without including controls. In Column (2), our preferred specification, we control for the set of covariates available. In columns (3) and (4) we exclude those municipalities located within 50 kilometers and 100 kilometers from the US, respectively. In all these models, Chinese presence has a positive and significant coefficient. The estimated coefficients indicate that in those municipalities with Chinese

communities in 1930 the likelihood of having cartels today is 10 to 15 percentage points higher.

[Insert Table 4 here]

Important for our identification strategy is that Chinese presence remains positive and significant after controlling for German presence, indicating that it is not immigration per se at the beginning of the XX century that is associated to cartel presence today, but Chinese immigration in particular.

In Table 5 we explore alternative definitions for Chinese presence. We define Chinese presence as Chinese population in 1930 being greater than 0, 5, 10, and 15 individuals. In all cases the coefficient for Chinese presence is positive and significant, with a value similar to the ones reported in Table 4.

[Insert Table 5 here]

In Table 6 we explore alternative definitions for Cartel presence. We use the other 3 variables available, namely Cartel presence 2006-2010, Cartel presence 2010, and Cartel presence 2005. In all cases the coefficient for Chinese presence remains positive and significant, with values for the coefficients similar to the ones reported in the previous tables. It is reassuring that all results hold when using indicators for cartel presence that come from different sources and were constructed using different methodologies.

[Insert Table 6 here]

Consequences of cartel presence

We are now interested in estimating the causal effect of cartel presence on socioeconomic outcomes. We start our analysis by estimating the following model:

$$Marginalization_{is} = \alpha\, Cartel\ presence_{is} + \pi\, X_{is} + \mu_s + \varepsilon_{is} \quad (2)$$

Table 7 reports OLS estimates for Equation (2). In all specifications, the coefficient on Cartel presence is negative and significant, indicating that cartel presence is associated to lower marginalization.

[Insert Table 7 here]

Cartel presence, however, may be endogenous in a model for marginalization. To address potential endogeneity concerns we instrument cartel presence today with Chinese presence in 1930 and estimate Equation (2) using 2SLS. The F-statistics from the first stage in our preferred specification is equal to 90.45.

The identification assumption is that Chinese presence in 1930 is not directly related to current socioeconomic outcomes, after conditioning on the set of controls. This assumption can be violated if Chinese migrated into those municipalities with better socioeconomic conditions. To account for this potential concern we control for the set of geographical characteristics and for state dummies. In addition, we also control for German presence in 1930, a variable that should capture any remaining unobserved heterogeneity related to overseas immigrants picking the best locations (migrants from neighbor countries locate themselves close to the border). In Mexico in 1930, the most important group of overseas immigrants was the Spaniards, by a large margin. The second and the third groups of immigrants were the Chinese and the Germans, in that order. As shown below, the fact that all results are robust to controlling for German presence provides confidence on the validity of the identification assumption. In addition, as reported in Table 4, German presence is not significant in the model for Cartel presence.

Table 8 reports OLS results for the reduced form equation. In all specifications, the estimates indicate that the presence of a Chinese community in a municipality decreases Marginalization in around 0.3 of a standard error.

[Insert Table 8 here]

Table 9 provide 2SLS estimates for Equation (2), instrumenting Cartel presence in 2011 with Chinese presence in 1930. We argue that Chinese presence in 1930 is not correlated with the un-observables influencing the outcomes of interest after conditioning on the set of geographic variables: Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, and Distance to US. We also control for German presence in 1930 (leaving aside Spaniards, Germans are the second group of overseas migrants behind Chinese), a variable that should capture any remaining unobserved heterogeneity related to immigrants picking the best locations, increasing our confidence in this instrumental-variables strategy.

[Insert Table 9 here]

Table 9 provides estimates without and with controls. The estimated coefficients indicate the presence of drug cartels in a municipality decreases the marginalization index in about 2 standard errors. Results are robust to restricting the sample to those municipalities located more than 50 kilometers and 100 kilometers from the US.

It is well known that the sensitivity of the 2SLS estimator to violations of the exclusion restriction depends on the strength of the instruments (Angrist and Krueger, 1994; Bound, Jaeger, and Baker, 1995). The F-statistics from the first stage in our preferred specification is equal to 90.45, indicating that the weak instrument problem is not a concern. Still, we conduct inference that is consistent with instruments being only plausibly exogenous (Conley et al., 2012), which allows for inference using instrumental variable estimation in situations where the exclusion restriction need not hold precisely.

In our setting, standard IV estimation requires that $\gamma=0$ in the following variation of Equation (2):

$$Marginalization_{is} = \alpha\ Cartel\ presence_{is} + \gamma\ Chinese\ presence_{is} + \pi\ X_{is} + \mu_s + \varepsilon_{is}$$

However, Conley et al. (2012) shows that the restriction that γ=0 can be relaxed, and replaced with the assumption that γ is close to, but not necessarily equal to, zero. We relax the assumption that γ=0 by using the local-to-zero approach, which requires the specification of the distribution that describes the prior belief about γ. We specify a normal distribution centered at zero, and we provide sensitivity analysis for different assumptions on the dispersion of γ. Though as recognized by Conley et al. (2012) the required assumptions on the dispersion of γ are always arbitrary, the exercise is informative on how large need to be the variance (under the maintained assumption that the mean of γ is equal to zero) in order estimates to become not significant. Results from this exercise are shown in Figure 6.

[Insert Figure 6 here]

In Table 10 we show that main estimates are also robust to alternative definitions for Chinese presence. Again, we alternatively define Chinese presence as Chinese population in 1930 being greater than 0, 5, 10, and 15 individuals. In all cases the 2SLS estimate for Cartel presence is negative and statistically significant.

[Insert Table 10 here]

In Table 11 we report estimates using the alternative measures for cartel presence. In all cases, 2SLS estimates of the coefficient for cartel presence are negative and significant.

[Insert Table 11 here]

To further validate our identification assumption, in Table 12 we report results restricting the sample to those municipalities with positive German presence. In this new sample of 142 municipalities results are strikingly similar to the ones reported with all municipalities. Chinese presence is significantly correlated with cartel presence and

with low marginalization. And cartel presence is significantly associated with lower marginalization.

[Insert Table 12 here]

Now we analyze individually the 9 components of the marginalization index. Table 13 reports 2SLS estimates for a variation of Equation (2), in which the left-hand variable Marginalization is replaced by each of the 9 component of the marginalization index.

[Insert Table 13 here]

Our estimates indicate that our preferred definition for Cartel presence is negatively associated to all 9 components of the index, and 6 out of 9 coefficients are statistically significant. In particular, Cartel presence is associated to good outcomes in terms of literacy, salaries, public service provision, and housing conditions.

In table 14 we reproduce the previous table, but we use the alternative measures for cartel presence. Now, the 3 alternative measures of cartel presence are negatively associated to all 9 components of the index, and 17 out of the 27 estimated coefficients are statistically significant.

[Insert Table 14 here]

6. Discussion and further results

Our results that cartel presence has a positive impact on literacy, salaries, public service provision at the local level are in line with the opinion of many Mexican thinkers that have argued that drug cartels have a significant socioeconomic impact on the economies in which they operate. For example, Chaban (2005) argues that "The narco, in its activity, generates direct jobs, which, in spite of being illegal, have an impact in the economies where it is based. The spillovers that propel drug organizations, especially at the local level, can alleviate much the hardships of an under-developed country, a

phenomenon that makes it a factor of stability. Also, drug cartels often collaborate in providing public services that benefit the community in which they operate, such as roads or schools. This contribution, in addition to generating sympathy among the local population, greatly alleviates the demand for basic services that the State is often unable to provide. On the other hand, the narco usually invests in legal business, which also has an impact on the economy and on the revenues of the State, through higher tax revenues."

In the above statement there is an additional testable implication, namely that cartel presence should be positively associated with tax revenue. As reported in Table 15, there is a positive and significant correlation between cartel presence and per capita tax revenue at the municipality level.

[Insert Table 15 here]

Finally we look into political outcomes. As reported in Table 16, cartel presence is associated with more political competition, as measured by the number of effective political parties in the 2015 election. We use two measures of the effective number of political parties. In columns (1) to (4) the dependent variable is the Laakso-Taagepera index, and in columns (5) to (8) the dependent variable is the Molinar index. In all cases the number of effective political parties in the 2015 election is higher in those municipalities with cartel presence.

[Insert Table 16 here]

These findings are not surprising for those involved in Mexican politics. Former president Fox, for example, in a 2016 interview warned of the risk that drug organizations would penetrate the political system by funding independent candidates, those outside the traditional political parties.[16] Thus, in those municipalities with cartel presence,

[16] http://www.elfinanciero.com.mx/nacional/mas-facil-que-narcotrafico-penetre-por-candidaturas-independientes-fox.html.

the narco is likely to finance some candidates outside the traditional political parties, incrementing the number of effective candidates. And this is exactly what we find.

7. Conclusions

We study the historical origins of Mexican cartel's emergence and its socioeconomic consequences today. We first trace the location of current cartels to the location of Chinese migration at the beginning of the XX century, and we document that both events are strongly connected. Chinese migrants had comparative advantage in the market for opium for many reasons. First, they brought to the Americas with them the raw material (poppy seeds). Second, they had the know-how on production and consumption (smoking). Third, with the restriction on Chinese immigration by the US at the end of the XIX century, many Chinese south of the border began to gather specialized knowledge on smuggling Chinese into the US. These elements, together with the timing of regulation on drugs on the US and weak institutions in Mexico after the revolution, create a 'perfect storm' that explains the reported link between Chinese presence in 1930 and current cartel location.

We argue the location of Chinese immigration in the early XX century is largely exogenous to current socioeconomic outcomes, and we exploit the variability in the location of Chinese presence in 1930 at the municipality level as an instrument for cartel presence today. Our results indicate a positive link between cartel presence and good socioeconomic outcomes at the municipality level, such as lower marginalization rates, lower illiteracy rates, higher salaries, and better public services.

The counterfactual in our empirical exercise are Mexican municipalities without cartel presence, and therefore it is possible that all municipalities in Mexico are worse off compared to a situation without cartels. This is important to understand the contribution of our paper, in the framework of previous literature that studies the consequences

of organized crime on multiple dimensions. The work by Pinotti (2015) indicate that organize crime is associated with bad outcomes at the macro level; that is, countries with organize crime perform worse off than countries without (or with fewer) organize crime. The works by Sviatschi (2017a; 2017b) shows that exposing children to illegal labor markets and to gang leaders reduces education and puts children on a criminal path. Our paper contributes to this body of literature by reporting that the criminal organizations are associated to good local outcomes, and helps to understand why drug lords have great support in the local communities in which they operate.

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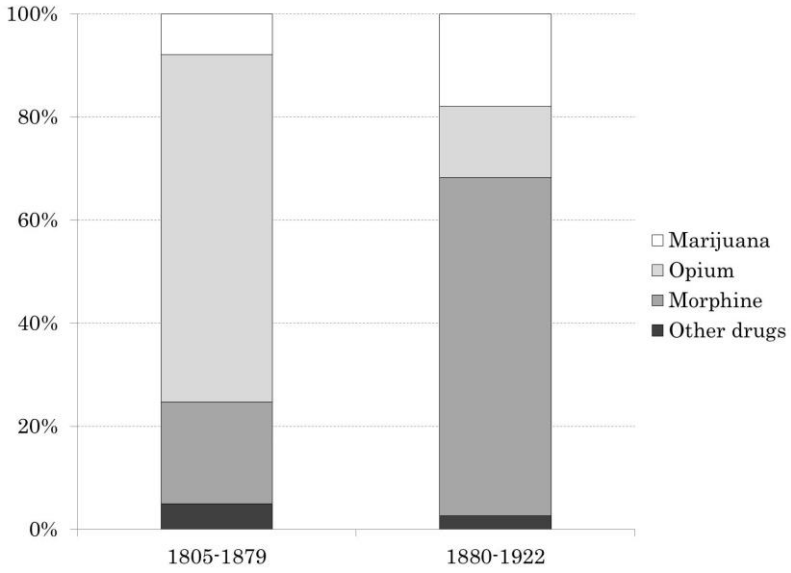
Figure 1. References to non-alcoholic drugs in the press



Notes: Other drugs include references to cocaine, peyote (*lophophora williamsii*) and *toloache* (*datura ferox*, known as 'fierce thornapple' in English). These figures correspond to 'raw hits' of references in media of terms associated with the consumption of these drugs. In The period 1805-1879 there are only 101 mentions of these non-alcoholic drugs (when there are almost 2,000 references to alcohol-related problems), and in the period 1880-1922 these mentions climb to 4243 (alcohol-related references to more than 38,000).

Sources: Campos (2012: 86).

Figure 2. Timeline of illicit drugs regulation in US and Mexico

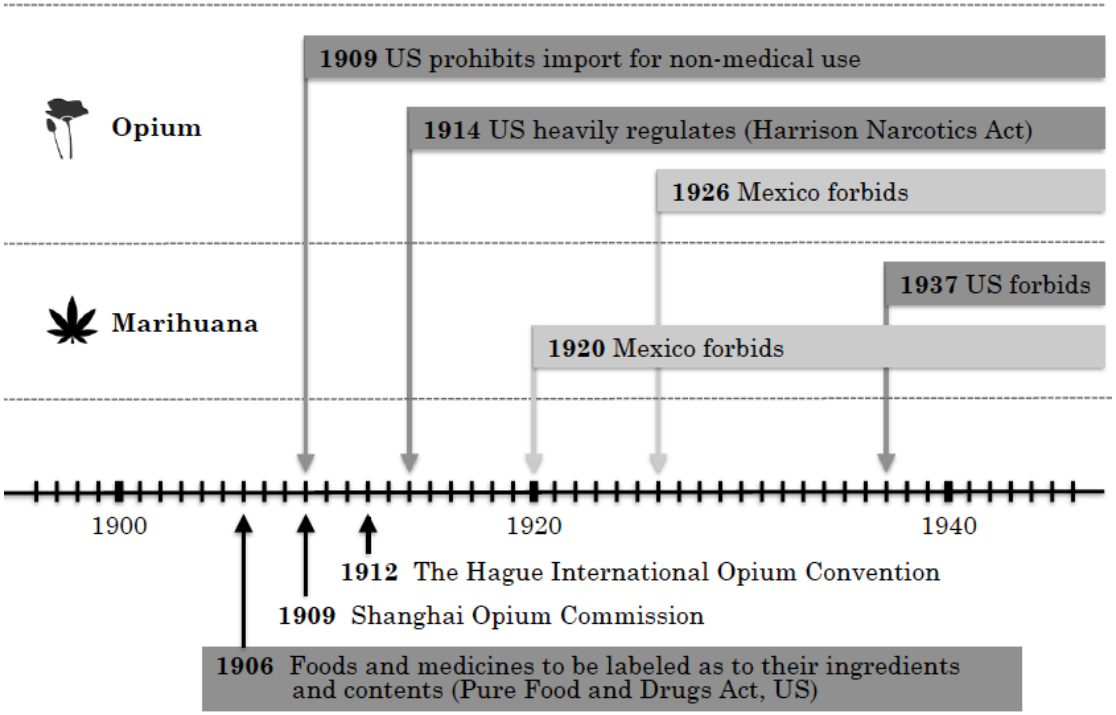
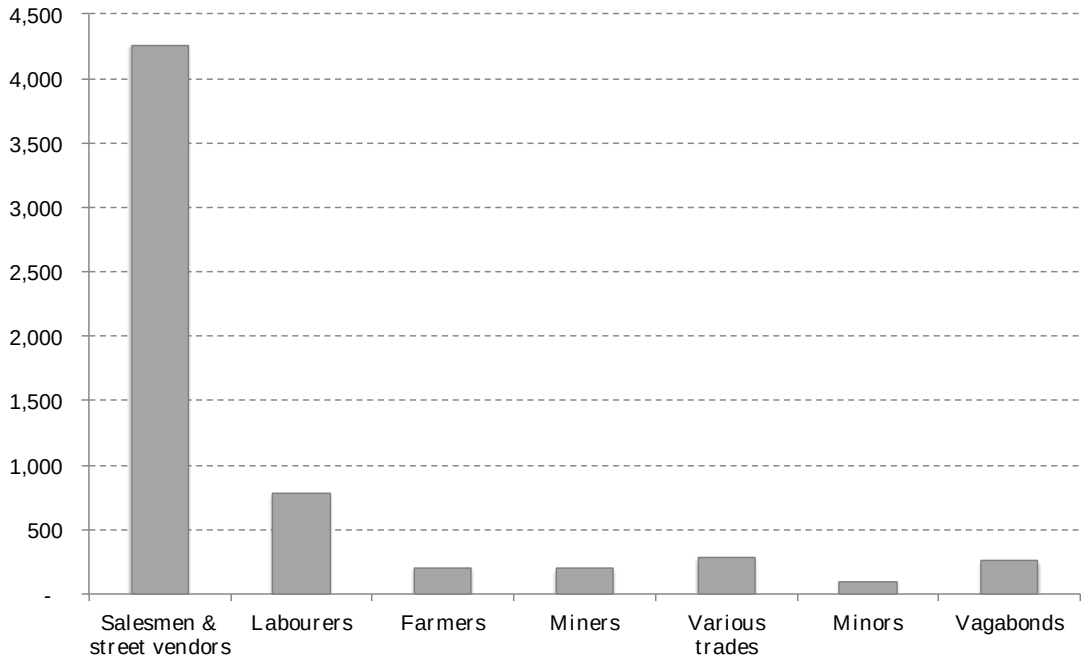


Figure 3. Chinese population in Mexico, 1895-1970

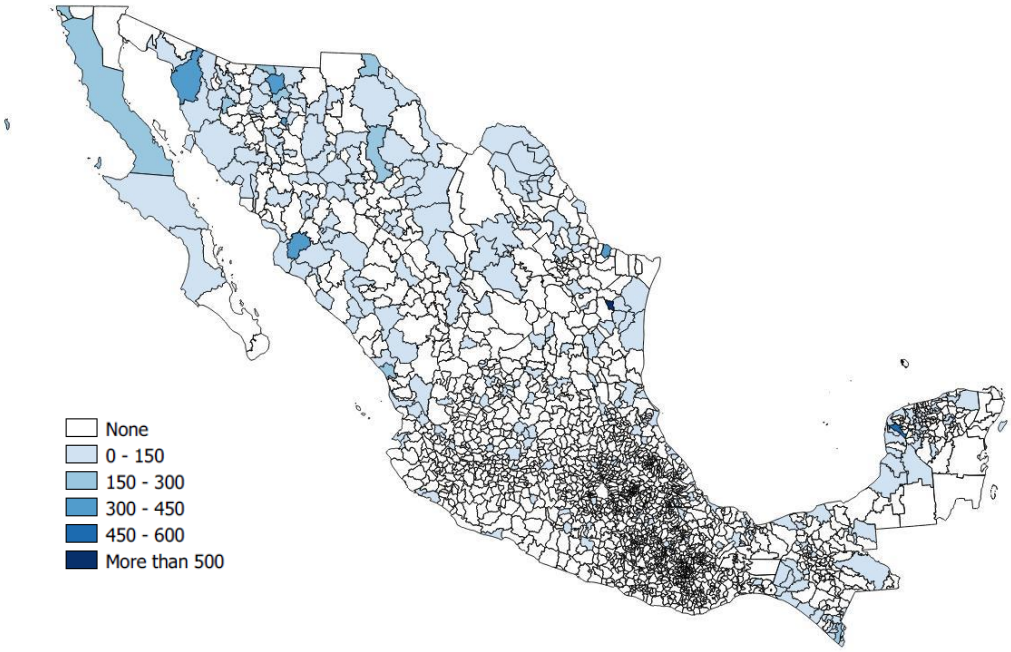
Source: INEGI (2014).

Figure 4. Occupations of Chinese in Sonora, 1919



Notes: Various trades include mostly cooks, laundrymen, cobblers, bakers, and tailors, among others.
Sources: Own elaboration, based upon Hu-DeHart (2013: 131).

Figure 5. Chinese population in Mexico, 1930



Sources: 1930 Census.

Figure 6. Confidence intervals for the coefficient on Cartel presence

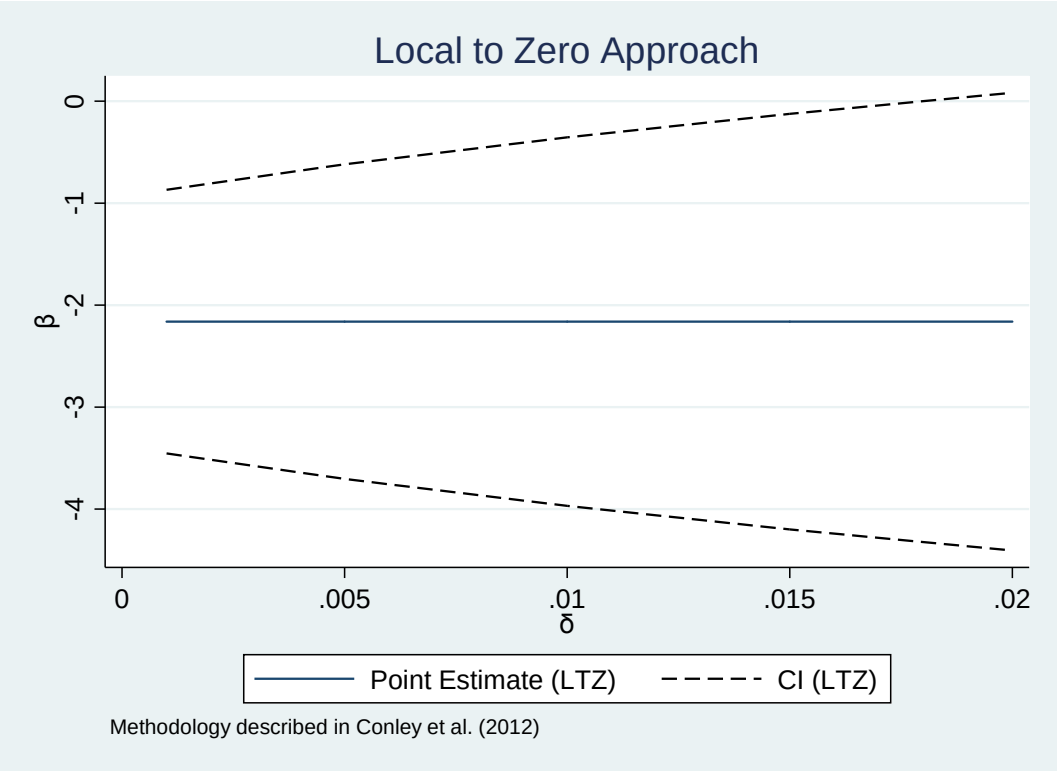


Table 1. Summary statistics

	(1) Mean	(2) S.D.	(3) Min.	(4) Max.
Cartel presence (in 2011)	0.42	0.49	0	1
Cartel presence 2006-2010	0.37	0.48	0	1
Cartel presence 2010	0.28	0.45	0	1
Cartel presence 2005	0.09	0.28	0	1
Chinese presence	0.11	0.31	0	1
German presence	0.06	0.23	0	1
Marginalization	0	1	-2.22	5.03
Laakso and Taagepera index	2.60	0.35	1	3.65
Molinar index	2.04	0.42	1	3.12
Per capita tax revenue	141.83	286.32	0.01	6,480
Controls				
Distance to US (km)	745.11	259.57	6.68	1,350
Minimum altitude (meters)	1,011	801	-202	2,691
Maximum altitude (meters)	1,970	983	8.00	5,469
Population (000)	45.32	129.18	0.087	1,677
Surface (000 km^2)	0.80	2.11	0.002	53.26
Average temperature (Celsius)	19.79	4.04	10.49	29.08
Maximum temperature (Celsius)	30.69	3.94	19.92	39.93
Minimum temperature (Celsius)	8.26	5.19	-5.58	21.38
Average precipitation (mm)	89.58	50.72	6.45	338.36
Poppy suitability	0.19	0.39	0	1

Notes: All data is at the municipality level. Cartel presence was provided Observatorio de Desarrollo y Promoción Social from Mexico, and takes the value 1 if there is cartel presence in 2011; Cartel presence 2006-2010 takes the value 1 if the total number of drug-related murders in the period December 2006 to December 2010 is greater than 0; Cartel presence 2010 and Cartel presence 2005 are binary variables based on web searches and provided by Coscia and Rios (2017); Chinese presence takes the value 1 if Chinese population in 1930 is greater than 1; German presence takes the value 1 if German population in 1930 is greater than 1; Marginalization is the marginalization index in 2015. Laakso and Taagepera index and Molinar index are from the 2015 election. Per capita tax revenue is for the period 2012-2014. Poppy suitability takes the value of 1 for those municipalities that have climate parameters in the range that FAO considers suitable for poppy (*papaver somniferum*) cultivation. Distance to the US is distance (in Km) from the centroid of the municipality to the US border.

Table 2. Components of the marginalization index

	(1) Mean	(2) S.D.	(3) Min.	(4) Max.
Illiteracy	11.75	8.60	0.67	56.42
Without primary	29.27	11.91	2.49	71.24
Without toilet	4.43	7.14	0	70.57
Without electricity	2.21	3.59	0	57.96
Without water	8.73	11.56	0	98.88
Overcrowding	36.27	11.36	7.28	78.46
Earthen floor	8.31	8.91	0	68.49
Small localities	71.98	34.69	0	100
Low salary	55.43	17.03	8.25	94.12

Notes: All data is at the municipality level. Illiteracy is the percentage of illiterate at age 15; Without primary is percentage of population at age 15 without primary school; Without toilet is percentage of population without toilet; Without electricity is percentage of population without access to electricity network; Without water is percentage of population without access to water network; Overcrowding is percentage of households with some level of overcrowding; Earthen floor is percentage of occupants in dwellings with an earthen floor; Small localities is percentage of population in localities with less than 5,000 inhabitants; Low salary is the percentage of labor force earning less than 2 minimum salaries.

Table 3. Chinese presence in 1930 and covariates

	Dependent variable: Chinese presence			
	(1)	(2)	(3)	(4)
German presence	0.4306***	0.4306***	0.4371***	0.3894***
	(0.0444)	(0.0444)	(0.0479)	(0.0478)
Poppy suitability		-0.0249	-0.0041	0.0002
		(0.0182)	(0.0141)	(0.0137)
Minimum altitude			-0.0000	0.0000
			(0.0000)	(0.0000)
Maximum altitude			-0.0000	-0.0000
			(0.0000)	(0.0000)
Average temperature			-0.0239	-0.0209
			(0.0541)	(0.0464)
Maximum temperature			0.0120	0.0085
			(0.0285)	(0.0239)
Minimum temperature			0.0109	0.0193
			(0.0213)	(0.0192)
Average precipitation			-0.0002	-0.0002
			(0.0002)	(0.0002)
Surface				0.0109**
				(0.0049)
Population				0.0002***
				(0.0001)
Distance to US				-0.0003
				(0.0002)
Observations	2,440	2,440	2,439	2,439

Notes: Standard errors clustered at the state level are shown in parentheses. In all cases the dependent variable is Chinese presence. All models are estimated using Ordinary Least Squares and include state dummies. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 4. First stage: Chinese presence in 1930 and cartel presence

	Dependent variable: Cartel presence			
	(1)	(2)	(3)	(4)
Chinese presence	0.1870***	0.1236***	0.1215***	0.1106***
	(0.0487)	(0.0357)	(0.0347)	(0.0358)
German presence		0.0377	0.0354	0.0304
		(0.0503)	(0.0521)	(0.0551)
Poppy suitability		0.0011	0.0049	0.0082
		(0.0283)	(0.0271)	(0.0264)
Minimum altitude		0.0000	0.0000	0.0000
		(0.0000)	(0.0000)	(0.0000)
Maximum altitude		-0.0000	0.0000	0.0000
		(0.0000)	(0.0000)	(0.0000)
Average temperature		0.0626	0.0816	0.1102*
		(0.0578)	(0.0589)	(0.0626)
Maximum temperature		-0.0303	-0.0390	-0.0541
		(0.0303)	(0.0309)	(0.0329)
Minimum temperature		-0.0215	-0.0297	-0.0409
		(0.0256)	(0.0275)	(0.0309)
Average precipitation		0.0000	0.0001	0.0001
		(0.0002)	(0.0002)	(0.0002)
Surface		0.0109*	0.0150**	0.0192**
		(0.0056)	(0.0059)	(0.0076)
Population		0.0005***	0.0005***	0.0005***
		(0.0001)	(0.0001)	(0.0001)
Distance to US		0.0001	0.0002	0.0002
		(0.0002)	(0.0002)	(0.0002)
Observations	2,440	2,439	2,402	2,368

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Ordinary Least Squares and include state dummies. In Columns 3 and 4 the sample is restricted to municipalities located more than 50km and 100km from US border, respectively. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 5. Robustness check: alternative definitions for Chinese presence

	Dependent variable: Cartel presence			
	(1)	(2)	(3)	(4)
Chinese presence	0.1377***	0.1544***	0.1241*	0.1078**
	(0.0421)	(0.0485)	(0.0662)	(0.0508)
Observations	2,439	2,439	2,439	2,439

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Ordinary Least Squares and include state dummies and the set of controls: Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence (adjusted in order to being defined in the same way as Chinese presence). In column (1) Chinese presence is defined as Chinese population in 1930 being greater than 0; in Columns (2) as being greater than 5; in Column (3) as being greater than 10; in Column (4) as being greater than 15. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 6. Robustness check: alternative definitions for cartel presence

	Cartel presence 2006-2010		Cartel presence 2010		Cartel presence 2005	
	(1)	(2)	(3)	(4)	(5)	(6)
Chinese presence	0.2252***	0.1164***	0.2250***	0.1159***	0.1388***	0.0582*
	(0.0451)	(0.0403)	(0.0376)	(0.0411)	(0.0269)	(0.0349)
Observations	2,440	2,439	2,439	2,438	2,440	2,439

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Ordinary Least Squares and include state dummies and the set of controls: Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 7. OLS Estimates: cartel presence and marginalization

	Dependent variable: Marginalization			
	(1)	(2)	(3)	(4)
Cartel presence	-0.4890***	-0.3596***	-0.3539***	-0.3518***
	(0.0884)	(0.0546)	(0.0531)	(0.0554)
Observations	2,440	2,439	2,402	2,368

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Ordinary Least Squares and include state dummies. The set of controls includes Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. In Columns 3 and 4 the sample is restricted to municipalities located more than 50km and 100km from US border, respectively. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 8. Reduced-form estimates: Chinese presence and marginalization

	Dependent variable: Marginalization			
	(1)	(2)	(3)	(4)
Chinese presence	-0.5092***	-0.2671***	-0.2845***	-0.2823***
	(0.0789)	(0.0716)	(0.0676)	(0.0710)
Observations	2,440	2,439	2,402	2,368

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Ordinary Least Squares and include state dummies. The set of controls includes Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. In Columns 3 and 4 the sample is restricted to municipalities located more than 50km and 100km from US border, respectively. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 9. IV Estimates: cartel presence and marginalization

	Dependent variable: Marginalization			
	(1)	(2)	(3)	(4)
Cartel presence	-2.7232***	-2.1616***	-2.3423***	-2.5520**
	(0.7457)	(0.7617)	(0.7884)	(0.9301)
Observations	2,440	2,439	2,402	2,368

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Two Stages Least Squares and include state dummies. Cartel presence is instrumented using Chinese presence. The set of controls includes Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. In Columns 3 and 4 the sample is restricted to municipalities located more than 50km and 100km from US border, respectively. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 10. Robustness check: alternative definitions for Chinese presence

	Dependent variable: Marginalization			
	(1)	(2)	(3)	(4)
Cartel presence	-1.6939***	-2.4526***	-4.0333*	-5.0810**
	(0.4533)	(0.7461)	(2.0597)	(2.2795)
Observations	2,439	2,439	2,439	2,439

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Two Stages Least Squares and include state dummies. Cartel presence is instrumented using Chinese presence. All models include the set of controls: Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence (adjusted in order to being defined in the same way as Chinese presence). In Column (1) Chinese presence is defined as Chinese population in 1930 being greater than 0; in Column (2) as being greater than 5; in Column (3) as being greater than 10; in Column (4) as being greater than 15. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 11. Robustness check: alternative definitions for cartel presence

	Dependent variable: Marginalization		
	(1)	(2)	(3)
Cartel presence 2006-2010	-2.2942***		
	(0.6279)		
Cartel presence 2010		-2.3051**	
		(0.9146)	
Cartel presence 2005			-4.5878*
			(2.4894)
Observations	2,439	2,438	2,439

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Two Stages Least Squares and include state dummies. In all cases Cartel presence is instrumented using Chinese presence. All models include the set of controls: Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 12. Robustness check: municipalities with German migration

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: Cartel presence		Dependent variable: Marginalization			
Cartel presence					-2.6331***	-3.6449**
					(0.7527)	(1.6229)
Chinese presence	0.2913***	0.1660*	-0.7669***	-0.6049***		
	(0.0964)	(0.0904)	(0.1083)	(0.1677)		
Controls	No	Yes	No	Yes	No	Yes
Observations	142	142	142	142	142	142

Notes: Standard errors clustered at the state level are shown in parentheses. All models include state dummies. Models in columns (1) to (4) are estimated using OLS, and models in columns (5) and (6) are estimated using Two Stages Least Squares (Cartel presence is instrumented using Chinese presence). The set of controls includes Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, and Distance to US. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 13. Cartel presence and marginalization components

	(1) Illiteracy	(2) Without primary	(3) Without toilet	(4) Without electricity	(5) Without water	(6) Overcrowding	(7) Earthen floor	(8) Small localities	(9) Low salary
Cartel presence	-16.3040**	-27.2950***	-7.6804	-7.3532*	-4.7574	-16.8895***	-7.5478	-86.8005**	-16.8761*
	(6.1705)	(9.5610)	(5.0336)	(4.1134)	(7.9317)	(5.5363)	(4.6804)	(33.3531)	(10.2051)
Observations	2,439	2,439	2,439	2,439	2,439	2,439	2,439	2,439	2,439

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Two Stages Least Squares and include state dummies. Cartel presence is instrumented using Chinese presence. All models include the set of controls: Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 14. Marginalization components and alternative definitions for cartel presence

	(1) Illiteracy	(2) Without primary	(3) Without toilet	(4) Without electricity	(5) Without water	(6) Overcrowding	(7) Earthen floor	(8) Small localities	(9) Low salary
Cartel presence 2006-2010	-17.304***	-28.969***	-8.151	-7.804**	-5.049	-17.920***	-8.011*	-92.125**	-17.911*
	(4.024)	(8.198)	(4.975)	(3.602)	(8.280)	(5.899)	(4.163)	(39.177)	(9.764)
Cartel presence 2010	-17.387*	-29.105**	-8.191*	-7.842*	-5.074	-18.012*	-8.048	-92.549***	-17.997
	(9.255)	(13.184)	(4.685)	(4.277)	(6.995)	(9.221)	(5.751)	(29.727)	(10.802)
Cartel presence 2005	-34.604*	-57.932*	-16.302	-15.607*	-10.097	-35.847	-16.020	-184.228*	-35.818
	(20.916)	(33.757)	(11.176)	(9.399)	(15.304)	(22.583)	(11.824)	(107.073)	(26.681)
Observations	2,439	2,439	2,439	2,439	2,439	2,439	2,439	2,439	2,439

Notes: Standard errors clustered at the state level are shown in parentheses. All models are estimated using Two Stages Least Squares and include state dummies. Cartel presence is instrumented using Chinese presence. All models include the set of controls: Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 15. Further results: cartel presence and tax revenue

	Dependent variable: ln(Per capita tax revenue)			
	(1)	(2)	(3)	(4)
Cartel presence	0.7640***	0.5889***	3.2391***	2.2771**
	(0.1563)	(0.1289)	(0.7299)	(0.9840)
Controls	No	Yes	No	Yes
Observations	2,262	2,261	2,262	2,261

Notes: Standard errors clustered at the state level are shown in parentheses. All models include state dummies. Models in columns (1) and (2) are estimated using OLS, and models in columns (3) and (4) are estimated using Two Stages Least Squares (Cartel presence is instrumented using Chinese presence). The set of controls includes Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 16. Further results: cartel presence and effective number of political parties

	Dependent variable: Laakso-Taagepera index of effective political parties in the 2015 election				Dependent variable: Molinar index of effective political parties in the 2015 election			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Cartel presence	0.1324***	0.0805***	0.6909***	0.4078	0.1364***	0.0704**	0.6268**	0.2491
	(0.0266)	(0.0185)	(0.2438)	(0.2646)	(0.0339)	(0.0264)	(0.2323)	(0.2582)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	2,416	2,416	2,416	2,416	2,416	2,416	2,416	2,416

Notes: Standard errors clustered at the state level are shown in parentheses. All models include state dummies. Models in columns (1), (2), (5), and (6) are estimated using OLS, and models in columns (3), (4), (7), and (8) are estimated using Two Stages Least Squares (Cartel presence is instrumented using Chinese presence). The set of controls includes Poppy suitability, Minimum altitude, Maximum altitude, Average temperature, Maximum temperature, Minimum temperature, Average precipitation, Surface, Population, Distance to US, and German presence. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.