Political Constraints and State Capacity: Evidence from a Land Allocation Program in Mexico*

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Abstract

In this paper we contribute to the understanding of the politics of state building. More specifically, we emphasize the case in which some (politically powerful) groups have a direct interest in sustaining a situation of state fragility. We undertake this research both by developing a theoretical political economy model of state fragility and the politics of state strengthening, and by testing the implications using unique historical and contemporary data from México. Our basic hypothesis builds on the observation that state capacity, by changing economic conditions in society, may affect the relationship between politicians and voters. This may be particularly important where politicians engage in 'clientelistic' relationships with voters: if state capacity leads to development, this increases the opportunity cost of clients, and thus, the cost of clientelism. Politicians investing on state capacity thus face a key tradeoff: while this investment may increases future rents, it hurts the base of clients, and therefore the likelihood that the clientelistic party or politician is able to stay in power when challenged by opponents. This perspective implies that clientelistic parties build state capacity when it is less likely that they will be challenged by an opponent. To test this hypothesis, we build on previous literature establishing that the PRI used its control of land, allocated to Mexican peasants as collective ejidos, to sustain its patronage networks. We verify if political incentives led the PRI to manipulate the allocation of land to affect the development of local state capacity. The essence of our empirical strategy is to establish whether the PRI systematically created conditions to forestall local state capacity via ejido allocation (in particular, locating ejidos in remote areas), especially in areas where it expected stronger political competition. Our paper relies on a novel dataset combining historical information on the allocation and location of ejidos, historical and contemporary measures of political competition, and contemporary public good provision data.

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1 Introduction

State capacity is a key element in promoting economic development, democracy and political stability. Strong states possessing the monopoly of violence and sufficient institutional and bureaucratic capacity are able to provide order, a functioning judicial system, and public goods to wide cross sections of society. Many nations around the world, however, have fragile states which lack these capacities. While there have been increasing academic efforts to understand the causes of state strength or fragility, we still lack a convincing understanding of the mechanisms that cause fragile states and their persistence.

In this paper, we contribute to the understanding of the politics of state building and state fragility and identify mechanisms which help to keep states fragile. In particular, we wish to understand the situations under which fragility may arise as an equilibrium outcome because some (politically powerful) groups have a direct interest in sustaining a situation of state fragility. We develop a theoretical political economy model of state fragility and the politics of state strengthening, and test the implications using data from México.

Our basic hypothesis builds on the observation that state capacity, by changing economic conditions in society, may affect the relationship between politicians and voters. This may be particularly important where politicians engage in 'clientelistic' relationships with voters. [1] In particular, if state capacity leads to development, this increases the opportunity cost of clients, and thus, the cost of clientelism. Clientelistic politicians or parties investing on state capacity thus face a key tradeoff: while investment may increases future rents, it hurts the base of clients, and therefore the likelihood that they are able to stay in power when challenged by opponents. Our model key testable implication is then that the erosion of the clientelistic base is less of a concern when expected political competition is lower. Thus, clientelistic parties or politicians then build state capacity when it is *less* likely that they will be challenged by an opponent.

As noted, we explore this hypothesis in the context of México, and more specifically in connection with the process of land redistribution in the form of ejidos. This was a key component of the Mexican Revolution and later consolidation of the Institutional Revolutionary Party (PRI) hegemony. Mexico specialists have long argued that the PRI used its control of land to sustain its patronage networks (e.g. Simpson (1937), Silva Herzog (1959), Eckstein (1968), Sanderson (1986)). Albertus, Diaz-Cayeros, Magaloni, and Weingast (2012) contend that land allocation created a political dependence that enabled the PRI to maintain a loyal political clientele, and Larreguy (2013) shows that the PRI's clientelistic networks still

[1] In 'clientelistic' exchanges electoral support is traded in exchange for gifts, jobs, or other group-specific transfers.

operate in *ejidos* where the PRI controls the state government.

From the 1910s to 1992 more than 50% of the land was redistributed as ejidos (Sanderson, 1984), with implications for economic development (Dell, 2012).[2] Our hypothesis is that these implications were intentional. Following our argument above, we verify if political incentives led the PRI to manipulate the allocation of land to affect the development of local state capacity.

The essence of our empirical strategy is to establish whether the PRI systematically created conditions to forestall local state capacity via ejido allocation, especially in areas where it expected stronger political competition. Our strategy then exploits the fact that since 1960 the PRI started to face political competition and threats to its power differentially across the country, and uses this variation in political competition and the patterns of land allocation across time to follow a simple difference-in-differences strategy. Specifically, we test if, relative to land allocation patterns before its power was contested circa the 1960s, the PRI granted ejidos farther away precisely in those places where it faced more opposition. This strategy provides a test on whether political competition induced the PRI to strategically forestall local state capacity to sustain political support. In particular, by verifying the validity of the *parallel trends* assumption we are able to provide suggestive evidence that any effects are truly the result of political competition where and when it mattered for the PRI, and not a mechanical consequence of other differences in land allocation patterns between contested and uncontested areas. We also take advantage of the richness of our dataset to rule out alternative explanations of our results.

We next discuss our contribution to the existing related literature on state capacity. Next, we outline out theoretical framework in section 3. Section 4 summarise our empirical strategy and data sources. Finally, we show our current findings in section 5.

2 Related Literature

Our approach falls in line with a few recent papers, discussing the political underpinnings of state fragility. Acemoglu, Robinson, and Santos (2013) show that state fragility in the sense that the Colombian state lacks a monopoly of violence can create strategic political advantages for some politicians. In their argument, non-state armed actors have preferences over national policies and can use coercion and fraud at the local level to influence election outcomes. This reduces the incentives of the politicians they favor to eliminate them. The theory finds support from a detailed empirical analysis of violence, elections, and patterns of roll-call voting in Colombia.

[2] Dell (2012) provides causal evidence of long run impact of land redistribution on development outcomes

A different, complementary argument is put forward in Fergusson, Robinson, Torvik, and Vargas (2012), who also present theory and empirical evidence in Colombia where political incentives help explain state fragility. In their theory, some politicians have a comparative advantage in undertaking a task, and this creates an incentive to underperform in the task in order to maintain their advantage. In the context of fighting against insurgents in a civil war and hence building state strength, defeating insurgents may erode the electoral advantage of incumbent politicians when they are seen as the best able to eliminate the insurgent threat.

Other scholars have argued for the idea of a "fragility trap" emphasizing the circular nature of some of the dimensions of fragile states, such as armed conflict, poor governance, polarization, and so on. But the idea of fragile states stemming from political incentives goes beyond a simple circular argument where, for example, armed conflict is likely to create poor governance and a polarized population, which, in turn, exacerbates violence.[3]

Our paper contributes to this literature by examining a different, complementary argument. While our theory shares the emphasis in political incentives to sustain state fragility, it does not focus on monopoly of violence as the key dimension of state capacity. Instead, we emphasize another key dimension of state capacity –the institutional and bureaucratic ability to effectively provide public goods– and investigate the extent to which this dimension too can be understood as a result of political incentives.

In terms of the literature on Mexican political economy, a related paper is that of Albertus et al. (2012). They argue that the PRI used land allocation to reward loyalist and punish opponents, as distributed land varied as a function of the electoral cycle and the likelihood of rural unrest. However, they present the long-run impact of land allocation as an unintended consequence, while we argue that land allocation was deliberately chosen to affect future outcomes. Also, our empirical differ along two different dimensions of land allocation: level and distance. They are silent about the investment (or lack of) on state capacity (i.e., *ejidos* could have been located in places close to their municipality heads), while our model explicitly speaks about it. Also, their story suggests that there should be a larger allocation of land in places with more political competition. If anything, our model suggests that there should be lower demand for land allocation when the allocated land is isolated, and thus a lower equilibrium outcome level of *ejido* allocation.

Improving our understanding of the political foundations of state capacity is key for the ultimate goal of devising strategies to effectively build this capacity. Indeed, without a clear understanding of the political stakes sustaining limited state capacity, it is unlikely

[3]Collier et al. (2003) present an argument along these lines, claiming many countries are caught in a "conflict trap" where wars and coups keep countries poor and dependent on primary commodity exports, which in turn make them more prone to wars and coups.

that external efforts aimed at contributing to the development of stronger institutional and bureaucratic development will be successful. Politically powerful groups that stand to loose from these efforts may oppose them, or adapt to new conditions and render the effort ineffective. Acemoglu and Robinson (2013) discuss this problem and provide a number of examples in the context of policy advice. Their advice is clear and our paper helps make progress in this direction: sound advice on economic policy should be based on careful political economy analysis and factor its influence in future political equilibria.

Therefore, one question we attempt to address in our paper concerns what specific obstacles could state-building efforts face in cases where powerful political actors stand to lose from stronger state capacity. Relatedly, which types of interventions aimed at increasing state capacity are more likely to be successful in this context? Notice also that some widespread ideas about the determinants of state capacity stand in sharp contrast with some of the implications of our hypothesis. In particular, one notion (and empirical evidence for the US, see Besley, Persson, and Sturm (2005)) purports that political competition is an important driver of better policies and state capacity. While this may be true in some contexts, our argument is that where a clientelistic party is already entrenched (as in México and several other countries in the region and the world) political competition, at least initially, may instead exacerbate the political incentives to limit state capacity. All of these points to a more careful analysis of the precautions that must be taken when devising strategies to strengthen the state.

Also relatedly, our approach calls the attention on the importance of revisiting the existing 'canonical' models of the determinants of state capacity. A long tradition, recently emphasized and popularized by Tilly (1992), associates high population densities around the XVth Century in Europe as a key driver of state capacity, as nations competed for territories. According to this line of thought, states were strengthened to fight wars (raise taxes, enlist soldiers, and develop infrastructure)[4]. This perspective, widely accepted for the emergence of the European nation state, was famously contested by Herbst (2000) as ultimately unsatisfactory to understand states in Africa. This region, with historically low population density, rarely faced wars of territorial conquest, and fighting instead focused on controlling people.

Understanding the political economy of state building in México and Latin America likely requires a different model. The region did not exhibit European population density. However, the African model is not appropriate either, and in fact the historically most densely populated areas had more developed states, yet with colonialism these regions experienced

[4]More recently, Gennaioli and Voth (2013) find that only capital intensive wars lead to state capacity building.

a 'Reversal of Fortune' (Acemoglu, Johnson, & Robinson, 2002; Robinson, 2002). In an influential study, Centeno (1997) argues that beyond population density, conditions were lacking for the establishment of powerful central states and, unlike in Europe, wherever present wars 'did not make the state'. Among the reasons he cites for this, an important one concerns the fact that elites did not support increased state extraction. Our paper may be viewed as an effort to better understand these political constraints. More generally, our study may help explain why the existing canonical models to understand state capacity are insufficient. There are various ways in which the state may consolidate its power and control, and the European 'Weberian' model where it does so by exchanging increased taxation for public good provision is likely to be misleading in the Latin American context.

3 A simple model

We next sketch our theoretical model in the spirit of Acemoglu (2005) and Robinson and Verdier (2013), which is work in progress. We consider a dynamic model where players are 2 parties, a clientelistic (incumbent) party and a non-clientelistic party, and voters. The size of the economy is a function $f(s)$ of state capacity s, where $f'(s) > 0$, $f''(s) < 0$. The law of motion of state capacity is as follows

$$s' = \delta \cdot s + i \tag{1}$$

where δ is the state capacity depreciation rate and i the investment in state capacity.

The incumbent party sets a tax rate τ, extracts a share θ of the taxation resources, and invest the rest in either clientelism c (for simplicity only the clientelistic party is able to do this) or state capacity i. The government budget constraint is then as follows

$$(1 - \theta) \cdot \tau \cdot f(s) \geq i + c. \tag{2}$$

Voters pay taxes, consume and vote in every period. Following Larreguy (2013) we can consider a set of one-period lived voters, and thus use the following expression as the the vote share for the clientelistic

$$v = \frac{1}{2} - \eta + \psi(s', c) + \omega \tag{3}$$

where η indicates the degree of competition that the clientelistic party faces, $\psi(s', c)$ is the advantage that comes from clientelism, [5] and $\omega \sim U[-\frac{1}{2\phi}, \frac{1}{2\phi}]$ is a shock to preferences.

[5] $\psi_1(s', c) < 0$, $\psi_2(s', c) > 0$, $\psi_{11}(s', c) < 0$, $\psi_{22}(s', c) < 0$, $\psi_{12}(s', c) > 0$.

Parties experience utility $\theta \cdot \tau \cdot f(s)$ in every period, and thus we can write they payoffs recursively in the following way.

$$V(s) = \theta \cdot \tau \cdot f(s) + p(s', c) \cdot V(s') \tag{4}$$

where $p(s', c) = \frac{1}{2} + \phi \cdot [\psi(s', c) - \eta]$

In this current version of the paper, we take an admittedly reduced form approach to $\psi_1(s', c)$. We consider the case where $\psi_1(s', c) < 0$, that is the case where more state capacity reduces the base of clients, and thus, the scope for clientelism. We can think of state capacity leading to development, which increases the opportunity cost of clients, and thus, the cost of clienetelism. However, recall that more state capacity increases future potential rents, $f'(s) > 0$. Contrarily, we assume that while clientelism has no economic return, it has a larger political return, $\psi_2(s', c) > 0$. In other words, the subset of clients coerced into preferring goodies rather than building on state capacity.

To reflect the set up of our empirical test, we assume the clientelistic party starts as the incumbent party. We are interested on the effect of political competition on state capacity building. We then look at the first order and envelope conditions of the clientelistic party, respectively.

$$-\Big[-p_1(s^{'}, c) + p_2(s^{'}, c)\Big] \cdot V(s^{'}) + p(s^{'}, c) \cdot V^{'}(s^{'}) = 0, \text{ and} \tag{5}$$

$$V^{'}(s^{'}) = \theta \cdot \tau \cdot f^{'}(s^{'}) \tag{6}$$

One can check that $SOC < 0$ since we have assumed that $f''(s') < 0$ and that $\psi(s', c)$ is globally concave on i. From these two expression we can then see that

$$\frac{ds^{'}}{d\eta} = -\frac{1}{SOC} \cdot \frac{dp(s^{'}, c)}{d\eta} \cdot \theta \cdot \tau = \frac{\phi \cdot \theta \cdot \tau}{SOC} < 0. \tag{7}$$

While investing on state capacity, increases rents for the incumbent clientelistic party, it also hurts the base of its clients, and thus the likelihood that the clientelistic party is able to stay in power when challenged by an opponent. This is less of a concern when political competition is lower, which leads us to out main empirical empirical implication: the clientelistic party is more likely to build state capacity when its is less likely that it will be challenged by an opponent.

4 Methods and Data

4.1 Empirical Strategy

A key implication of our conceptual framework is that a clientelistic party builds state capacity when its is less likely that it will be challenged by an opponent.

To test this hypothesis, we examine whether the PRI invested less in state capacity in places where it faced more opposition. However, examining this relationship using measures of public good provision is problematic because of potential endogeneity problems. In particular, it may be that areas that are richer or more developed for reasons other that investments in state capacity, are then able to provide more public goods, and also exhibit differential patterns of political competition. Instead, we propose examining the location at which ejidos were allocated by the PRI. This variable has several advantages. First, it is largely under the control of the PRI which set the rules and procedures for land grants. Second, it is an important determinant of state capacity, because in our argument, the PRI had a strategic incentive to assign ejidos far away to limit state capacity building, thus facilitating future clientelistic relationships. Finally, since once determined distance is a stable characteristic of localities, endogeneity concerns are less pressing in this case.

To reinforce our point for distance as a key driver of state capacity, we thus start by running the following regression model:

$$\text{SharePublicGood}_{\ell,m} = \alpha + \delta \cdot \text{Distance}_{\ell,m} + \eta_m + \varepsilon_{\ell,m}, \tag{8}$$

where $\text{SharePublicGood}_{\ell,m}$ is the share of households in locality ℓ in municipality m with either 1) piped water, or 2) sewage, or 3) electricity. $\text{Distance}_{\ell,m}$ is calculated from the centroid of locality ℓ to municipality head of m while η_m are municipality fixed effects. Tables 1 and 2 show our preliminary results for these specifications. As expected, distance to municipality head is negatively correlated with our measures of state capacity both with the full set of Mexico's localities (Table 1), and in a subsample of localities that intersect with ejidos (Table 2).

These results reassure us that distance is a key cost-driver of state capacity building, and could have been used strategically by the PRI in its allocation of ejidos. To test our hypothesis, we must examine if the distance of allocated ejidos to municipality heads was manipulated by politicians to affect the provision of public goods and therefore the prevalence of clientelistic relationships.

Our strategy exploits the fact that since 1960 the PRI started to face political competition

and threats to its power differentially across the country[6]. We use this variation in political competition and the patterns of land allocation across time to follow a simple difference-in-differences strategy. Specifically, we test if, relative to land allocation patterns before its power was contested circa the 1960s, the PRI granted *ejidos* farther away precisely in those places where it faced more opposition. Our baseline specification is the following:

$$\text{Distance}_{e,m} = \alpha + \beta \cdot \text{Post1960}_{e,m} + \gamma \cdot (\text{Post1960}_{e,m} \times \text{PoliticalCompetition}_{m}) + \eta_m + \varepsilon_{e,m} \tag{9}$$

In (9), the dependent variable is the distance from ejido e to the municipality head, while $\text{Post1960}_{e,m}$ is a dummy variable that is equal to 1 if the ejido e was created after 1960[7] Here, $\text{PoliticalCompetition}_{m}$ is defined through several measures, including:

a) Effective Number of Political Parties:

$$N = \frac{1}{\sum_{i=1}^{n} p_i^2} \text{ , with } p_i \text{ equal to the vote share of each of } n \text{ available parties.} \tag{10}$$

b) Vote Fragmentation:

$$F = 1 - \sum_{i=1}^{n} p_i^2 \text{ , with } p_i \text{ equal to the vote share of each of } n \text{ available parties.} \tag{11}$$

c) Vote Share for the PRI in the Top Two:

$$s = \frac{\text{Votes for PRI}}{\text{Total Votes for Top Two Parties}} \tag{12}$$

d) PRI Incumbency:

$$i = \begin{cases} 1 & : \text{PRI Won the Elections} \\ 0 & : \text{PRI Lost the Elections} \end{cases} \tag{13}$$

All of these measures that reflect political competition are calculated with data from the first election for which election data is available at the municipal level, which is normally in the 1970s. In this context, we expect that γ will be positive for measures of political

[6]Those threats included the loss of one gubernatorial election (Nayarit), and most likely fraudulent victories in several state elections (Chihuahua, San Luis Potosi and Sonora) and municipal races (Bezdek (1973), Lujambio (2001)), as well as frequent rural rebellions.

[7]In additional regressions presented in the Appendix we also include a full set of quinquennial fixed effects, in addition to the simple $Post1960_{e,m}$ dummy. That is, we allow for ejidos allocated within a given qinquennium to have a different average distance to municipality heads.

competition (**a** and **b**) and negative for measures of electoral control or hegemony (**c** and **d**).

In addition to these measures of electoral competition, we use a novel measure of dynastic political families that takes into account how often the last names of municipal presidents are repeated through the years. Our argument is that municipalities with more repetition in last names are less likely to have large political changes, and thus, have less political competition. To save space, the results with these alternative measure, together with some additional robustness checks, are relegated to the Appendix.

Finally, the model includes municipality fixed effects η_m and clustered errors at municipality level.

This empirical strategy provides a test on whether political competition induced the PRI to strategically forestall local state capacity to sustain political support. In particular, by verifying the validity of the *parallel trends* assumption are able to provide suggestive evidence that any effects are truly the result of political competition where and when it mattered for the PRI, and not a mechanical consequence of other differences in land allocation patterns between contested and uncontested areas.

Also, we carefully try to rule out other alternative explanations taking advantage of the richness of our data set. For instance, one concern could be that a significant γ just reflects mean reversion, where more competitive places are allocated more land initially or are characterized by worse availability of land close to the municipal head. If this is the case, there is then less land availability close to municipality heads over time. We can partially control for this by running the following regression:

$$\begin{aligned}\text{Distance}_{e,m} = \alpha + \beta \cdot \text{Post1960}_{e,m} + \gamma \cdot (\text{Post1960}_{e,m} \times \text{PoliticalCompetition}_m) \\ + \delta \cdot stock_m + \kappa \cdot (\text{Post1960}_{e,m} \times stock_m) + \eta_m + \varepsilon_{e,m} \qquad (14)\end{aligned}$$

where $stock_m$ is the stock of *ejidos* in municipality m at the time of the creation of *ejido* e.

A second important source of concern is that ejidos in municipalities with a relatively more competitive electoral environment exhibit differential trends on distance of allocated land for reasons other than electoral competition. That is, our estimated interaction term could be picking up the effect of other municipality characteristics that happen to affect the distance of allocated ejidos. Of course, for this source of bias to affect our conclusion, it would have to be the case that such municipal traits have a differential impact after 1960. While this is less likely, we can directly test for the possibility by running the following

specification

$$\text{Distance}_{e,m} = \alpha + \beta \cdot \text{Post1960}_{e,m} + \gamma \cdot (\text{Post1960}_{e,m} \times \text{PoliticalCompetition}_m) + \sum_i \delta_m \left(\text{Post1960}_{e,m} \times X_m^i\right) + \eta_m + \varepsilon_{e,m} \quad (15)$$

where X_m^i are a set of (predetermined) municipal characteristics. Since these X_m^i variable must be exogenous, we focus on a set of structural geographic factors which could potentially influence both the level of electoral competition and the average distance at which ejidos could be allocated. These include: municipal area, average rain fall and rain variability, air humidity, average altitude and its variation, and soil humidity and its variation.

In addition to the above specification checks, we also verify that our main conclusion survives the inclusion of state-specific trends.

4.2 Data Sources and Summary Statistics

The estimation of (8) and (9) uses a variety of data sources. We map *ejidos* to localities with spatial data from the *Programa de Certificación de Derechos Ejidales y Titulación de Solares*, PROCEDE. Spatial data on the location of localities and municipality heads as well as public services coverage in 2000 are taken from the *Instituto Nacional de Estadística y Geografía*, INEGI.

In addition to these sources, information of the creation dates of *ejidos* are from the *Padrón e Historial de Núcleos Agrarios*, PHINA. Electoral data is from the *BANAMEX-CIDAC* website. The dynastic political families measure are constructed from *Enciclopedia de los municipios y delegaciones de México* available in the INAFED webpage "e-local".

For additional exercises, we also use information about land quality of ejidos from two different sources. First, we estimate the inherent land quality rating from databases of the *U.S Department of Agriculture* which rate the soil resilience and the soil performance around the world considering several climate and geological factors. We also use an overall index at the ejido level incorporating all the possible combinations of soil resilience and soil performance. Second, we use a standardized soil quality measure from the *Food and Agriculture Organization of the United Nations (FAO)*, that takes into account the major environmental constraints and opportunities for agricultural production.

Finally, our set of geographical covariates are taken from the geodesy database of the *Instituto Nacional de Estadística y Geografía*, INEGI.

Table 3 shows summary statistics for all the variables used in the empirical strategy and Figure 1 plots the frequency of the allocation of ejidos over time.

5 Results

5.1 Main results and robustness

We begin by graphically exploring our basic hypothesis as embedded in equation (9) together with the validity of our key identification assumption. In particular, in Figure 2 we divide our sample of municipalities in two groups: those with high and those with low measures of political competition (using our various measures described in the preceding section). We next plot our distance variable (distance to the municipality head) against the year in which ejidos were allocated.

The results are very suggestive of both the validity of our identification assumption and of the existence of an intentional manipulation of the distance of allocated ejidos to forestall state capacity in more competitive places. Indeed, notice that before 1960, at times when the PRI's power was not contested, both types of municipalities trend together. As expected (with close land becoming less readily available) allocations tend to occur farther away from the municipality head as the century progresses. However, the distance grows at a similar pace in both competitive and non-competitive places. That both types of municipalities exhibit such parallel (in fact, common) trends lends support to our identification assumption: namely, that had it not been for the contestation of PRI's power starting in the 1960s, the distance of allocations would not have differed between the two types of municipalities.

After 1960, however, there is an abrupt increase in distance of the allocations. More importantly, a gap opens up, with more competitive places experiencing a stronger increase in distance. This already lends support to our basic hypothesis. However, it is important to analyze the robustness of our results to additional controls, and rule out some alternative stories. Hence, in Table 4 we run our basic regression specification (9). Consistently, we find that the key interaction term γ is significant with the expected sign: more competitive places experienced a sharper increase in distance of allocations after 1960. The effects are not very large in terms of the mean and standard deviation of the distance measure, but they are very precisely estimated and consistent across all measures of political competition or PRI control.

As highlighted in the previous section, one concern could be that a significant γ just reflects mean reversion, where more competitive places are allocated more land initially or are characterized by worse availability of land close to the municipal head. To deal with this empirically, we first split the histogram of Figure 1 by the degree of political competition in Figure 3. The plots do not indicate a differential allocation of ejidos over time across municipalities with differential degree of competition.[8] We then control for

[8]The only exception is the case of those municipalities with and without a PRI incumbent where the

this possibility including the the stock of ejidos at each municipality and its interaction with political competition, as describe in equation (14). The results are reported in Table 5. While there is indeed a differential impact of the existing stock on distance of ejido allocations in municipalities with varying degrees of political competition (the interaction between stock and political competition is always significant at more than the 99% confidence level), this does not explain our earlier results. Our key coefficient γ for the interaction between political competition and the Post 1960 dummy remains not only significant, but also similar in size to that reported in Table 4 (and this is true across all measures of political competition).

5.2 Additional robustness

Results from Tables 4 and 5, and our check for parallel trends, suggests that the distance of allocated ejidos, far from being an accident or a mechanical result solely determined by the availability of land, was partly driven by the fact that the clientelistic had incentives not to build state capacity when effectively challenged by political opponents.

In this section, we present additional exercise to rule out potential alternative mechanisms that could be driving our results. We start with the concern we spelled out in section 4.1 about our estimated interaction term picking up the effect of other municipality characteristics that happen to affect (differentially since 1960) the distance of allocated ejidos. Table 6 runs equation (15), where differential trends, parametrized as functions of predetermined geographical characteristics, are allowed in the regression. It indeed appears that some of these characteristics have an influence on the distance of ejidos since 1960 (area, rainfall, and altitude, in particular, are significant across all columns, which present the results for each measure of political competition). However, like the stock of allocated land, this does not explain our earlier results. Our key coefficient interaction term is still very significant and almost identical in size to that reported in Table 4 (in fact, the coefficient is even slightly larger in most columns). Thus, we conclude that our results are not driven by a spurious correlation between political competition and other drivers of the distance of ejidos.

An additional robustness check stems from the concern that state differences drive the results. Of course, all municipal structural characteristics influencing ejidal distance are controlled for in the regressions presented thus far with the inclusion of fixed effects. But since much of Mexican politics, and certainly ejidal allocation, was determined at the state level, one concern could be that our results are driven by a few states exhibiting very specific patterns in distance of allocated ejidos across time. Hence, in Table 7 we add state-specific time trends to our baseline regression. In fact, to flexibly control for this, we include a cubic

levels are clearly different but that is driven by the fact that very few municipalities did not have a PRI incumbent in the 1970s.

polynomial of time (that is, year of allocation) interacted with the full set of state dummies. Our results are not just unchanged: they are in fact typically strengthened slightly when we compare the sizes of the coefficients with those in the baseline Table 4 .

5.3 Distance and land quality

As a final exercise, we study whether ejidal distance, rather than mattering *per se*, is in fact important because it correlates with land quality. Indeed, one potential interpretation is that ejidos were allocated far from municipality heads because the best land was typically near municipal centers. Rather than distance, politicians would be manipulating land quality, perhaps even with similar intentions as in our interpretation. Hence, while this possibility is not completely at odds with our interpretation, we would like to know if distance mattered in more competitive places beyond potential incentives to allocate the worst tracts of land.

Table 8 thus runs our baseline specification, but with different measures of land quality as the dependent variable. The able has the following structure. Column 1 includes a mesure of agricultural constraints from the FAO where higher values of that measure indicate increasing constraints to agriculture. Columns 2 to 4 consider two dimensions of land quality, soil resilience and soil performance, and an overall composite index that ranges from 1 to 9 using all the posible combinations of soil resilience and soil performance. Thus, the index takes the value of 1 for soils with high resilience and high performance and the value of 9 for soils with low resilience and low performance. The table is also divided into four panels, A to D, one for each of the measures of competition that we use for our main interaction of interest. Our finding, constant across all columns and panels, is that competition after 1960 *does not* have an impact on land quality of allocated ejidos. Thus, we conclude that it is distance per se what mattered for the clientelistic party. This key cost shifter of the provision of public goods allowed the PRI to strategically keep crucial areas (those more threatened with competition) more dependent of clientelism.

6 Conclusions

To be completed.

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Table 1: State Capacity on Distance:
Full Set of Localities

	Piped Water	Drainage	Electricity
	(1)	(2)	(3)
Distance to Mun. Head	-0.0652***	-0.1031***	-0.0721***
	(0.0039)	(0.0029)	(0.0041)
Municipality Fixed Effets	Yes	Yes	Yes
Observations	107,218	107,218	107,218
R^2	0.2855	0.3905	0.3040

Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Table 2: State Capacity on Distance:
Only Localities that Overlap with Ejidos

	Piped Water	Drainage	Electricity
	(1)	(2)	(3)
Distance to Mun. Head	-0.0396***	-0.0755***	-0.0622***
	(0.0070)	(0.0046)	(0.0078)
Municipality Fixed Effets	Yes	Yes	Yes
Observations	41,006	41,006	41,006
R^2	0.3127	0.4344	0.3708

Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Summary Statistics

	Mean	St. Dev	Observations
A. Public Goods			
Piped Water	.4986	.3953	18,478
Drainage	.2703	.2880	18,478
Electricity	.7077	.3577	18,478
B. Proxy of State Capacity			
Distance to Municipality Head	15.2949	15.3939	18,478
C. Political Competition			
Effective Number of Political Parties (ENP)	1.6537	.5216	25,710
Vote Fragmentation (Fractionalization)	.3342	.2038	25,710
Vote Share for the PRI in the Top Two	.7821	.1763	25,710
PRI Incumbency (PRI Winner)	.9252	.2630	25,710
Dynastic Continuous measure	-.2006	.4226	25,568
Dynastic Dummy measure	-.1979	.3727	25,568
D. Geographical Covariates			
Municipality Area	6.8380	1.3520	26109
Average Normalized Rain Fall	0	0.0150	26109
Rain Variability	0	1	26109
Air Humidity	9.3750	7.544	26250
Average Altitude	1206.3540	889.2770	26250
Standard Deviation of Altitude (Roughness)	261.6500	184.3520	26250
Soil Humidity	6.3250	2.7990	26250
Standard Deviation of Soil Humidity	1.0810	0.9380	26250
E. Land Quality Measures			
Agricultural Constraints (FAO Quality)	0.027	1.008	24189
Soil Resilience	1.639	0.674	24332
Soil Performance	2.313	0.771	24332
Overall Index	5.295	2.583	24332

Table 4: Baseline Model

	(1)	(2)	(3)	(4)
Dep Var: Distance to Mun. Head				
Post 1960	-0.0364	0.0599*	0.5352***	0.4277***
	(0.0684)	(0.0361)	(0.0985)	(0.0913)
Post 1960 × Political Competition	0.1344***	0.3750***	-0.4452***	-0.2619***
	(0.0413)	(0.0977)	(0.1204)	(0.0933)
Competition Measure:	ENP	Fract.	PRI Vote	PRI Inc.
Municipality Fix Effects:	✓	✓	✓	✓
Observations	18,052	18,052	18,052	18,052
R^2	0.5704	0.5706	0.5706	0.5703

Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Robustness I - Controlling for the Stock of Allocated Land

	(1)	(2)	(3)	(4)
Dep Var: Distance to Mun. Head				
Post 1960	-0.0354	0.0628*	0.5371***	0.4214***
	(0.0698)	(0.0380)	(0.0992)	(0.0886)
Post 1960 × Political Competition	0.1361***	0.3804***	-0.4499***	-0.2641***
	(0.0417)	(0.0982)	(0.1190)	(0.0911)
Stock	0.0039***	0.0039***	0.0039***	0.0039***
	(0.0009)	(0.0009)	(0.0009)	(0.0008)
Stock × Political Competition	-0.0030***	-0.0030***	-0.0028***	-0.0025***
	(0.0008)	(0.0008)	(0.0009)	(0.0008)
Competition Measure:	ENP	Fract.	PRI Vote	PRI Inc.
Municipality Fix Effects:	✓	✓	✓	✓
Observations	18,052	18,052	18,052	18,052
R^2	0.5718	0.5720	0.5720	0.5717

Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Robustness II - Controlling for differential trends based on municipal characteristics

	(1)	(2)	(3)	(4)
Dep Var: Distance to Mun. Head				
Post 1960	-0.6292***	-0.4979***	-0.0706	-0.1960
	(0.1467)	(0.1408)	(0.1645)	(0.1543)
Post 1960 × Competition	0.1412***	0.3560***	-0.4489***	-0.2531***
	(0.0367)	(0.0907)	(0.1079)	(0.0790)
Post 1960 × Area	0.0837***	0.0809***	0.0865***	0.0860***
	(0.0158)	(0.0159)	(0.0158)	(0.0160)
Post 1960 × Av. Rain	3.7952***	3.6499***	3.4945***	3.3328***
	(1.1598)	(1.1744)	(1.1907)	(1.1721)
Post 1960 × Z-score rain	-0.0261	-0.0282	-0.0238	-0.0252
	(0.0209)	(0.0210)	(0.0211)	(0.0209)
Post 1960 × Air Humidity	0.0034	0.0035	0.0040	0.0045*
	(0.0024)	(0.0024)	(0.0024)	(0.0024)
Post 1960 × Altitude (mean)	-0.0001**	-0.0001**	-0.0001**	-0.0001**
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Post 1960 × Altitude (sd)	0.0000	0.0000	-0.0000	-0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Post 1960 × Soil Humidity (mean)	-0.0002	-0.0004	0.0001	0.0009
	(0.0062)	(0.0062)	(0.0062)	(0.0065)
Post 1960 × Soil Humidity (sd)	0.0084	0.0063	0.0075	0.0076
	(0.0165)	(0.0164)	(0.0160)	(0.0155)
Competition Measure:	ENP	Fract.	PRI Vote	PRI Inc.
Municipality Fix Effects:	✓	✓	✓	✓
Observations	17,987	17,987	17,987	17,987
R^2	0.5752	0.5752	0.5754	0.5750

Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Robustness III - Adding state-specific trends

	(1)	(2)	(3)	(4)
Dep Var: Distance to Mun. Head				
Post 1960	-0.1538**	-0.0461	0.4703***	0.3073***
	(0.0773)	(0.0482)	(0.1110)	(0.0911)
Post 1960 × Competition	0.1489***	0.4100***	-0.4836***	-0.2363***
	(0.0434)	(0.1077)	(0.1286)	(0.0888)
Competition Measure:	ENP	Fract.	PRI Vote	PRI Inc.
Cubic State Trends	✓	✓	✓	✓
Municipality Fix Effects:	✓	✓	✓	✓
Observations	18,052	18,052	18,052	18,052
R^2	0.5874	0.5876	0.5876	0.5871

Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Mechanisms - Is it land quality or distance?

Dep. var:	(1) FAO Quality	(2) Resilience	(3) Performance	(4) Overall Index
Panel A: Effective Number of Political Parties				
Post 1960	-0.0215	0.0074	-0.0320	-0.0726
	(0.0358)	(0.0364)	(0.0382)	(0.1384)
Post 1960 × Competition	0.0138	-0.0132	0.0180	0.0267
	(0.0225)	(0.0212)	(0.0211)	(0.0722)
Constant	0.0336***	1.6367***	2.3135***	5.2932***
	(0.0032)	(0.0040)	(0.0040)	(0.0144)
R^2	0.9074	0.7374	0.8163	0.7704
Panel B: Vote Fragmentation				
Post 1960	-0.0083	0.0025	-0.0218	-0.0540
	(0.0197)	(0.0209)	(0.0234)	(0.0896)
Post 1960 × Competition	0.0288	-0.0501	0.0581	0.0757
	(0.0564)	(0.0546)	(0.0565)	(0.2048)
Constant	0.0337***	1.6366***	2.3134***	5.2927***
	(0.0032)	(0.0040)	(0.0040)	(0.0144)
R^2	0.9073	0.7374	0.8164	0.7705
Panel D: PRI Vote Share				
Post 1960	0.0384	-0.0850*	0.0740	0.0700
	(0.0529)	(0.0457)	(0.0492)	(0.1722)
Post 1960 × Competition	-0.0473	0.0901	-0.0973	-0.1258
	(0.0635)	(0.0576)	(0.0641)	(0.2290)
Constant	0.0337***	1.6366***	2.3134***	5.2927***
	(0.0032)	(0.0040)	(0.0040)	(0.0143)
R^2	0.9073	0.7375	0.8164	0.7705
Panel C: PRI Win				
Post 1960	0.0605	-0.0584*	0.0212	-0.0302
	(0.0538)	(0.0310)	(0.0316)	(0.0780)
Post 1960 × Competition	-0.0637	0.0475	-0.0253	0.0017
	(0.0546)	(0.0332)	(0.0337)	(0.0892)
Constant	0.0337***	1.6367***	2.3133***	5.2924***
	(0.0032)	(0.0040)	(0.0040)	(0.0143)
R^2	0.9074	0.7375	0.8163	0.7705
Observations	23,680	23,823	23,823	23,823

Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Figure 1: Allocation of Ejidos Overtime

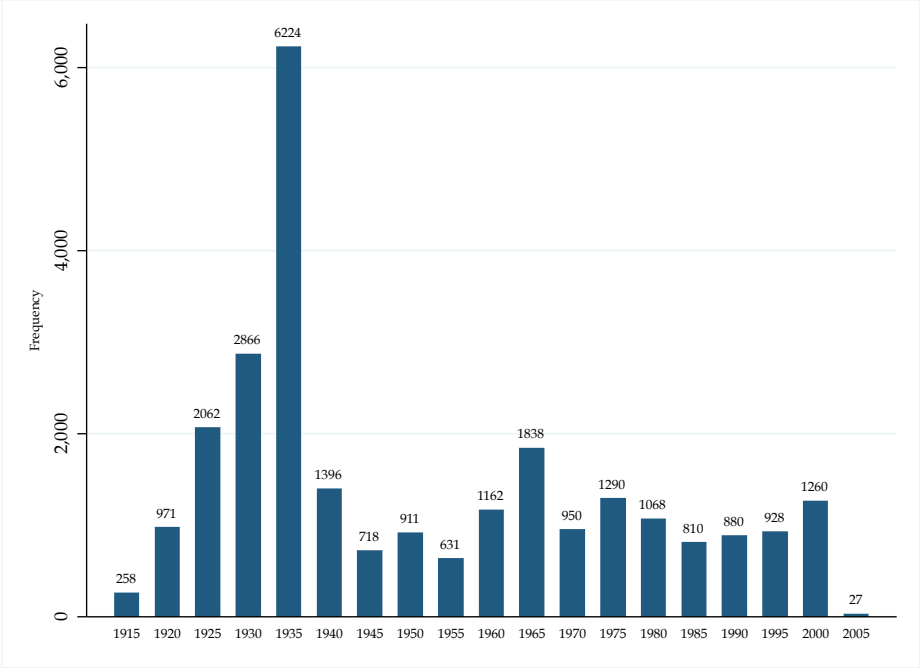


Figure 2: Political Competition and Distance to Municipality Head

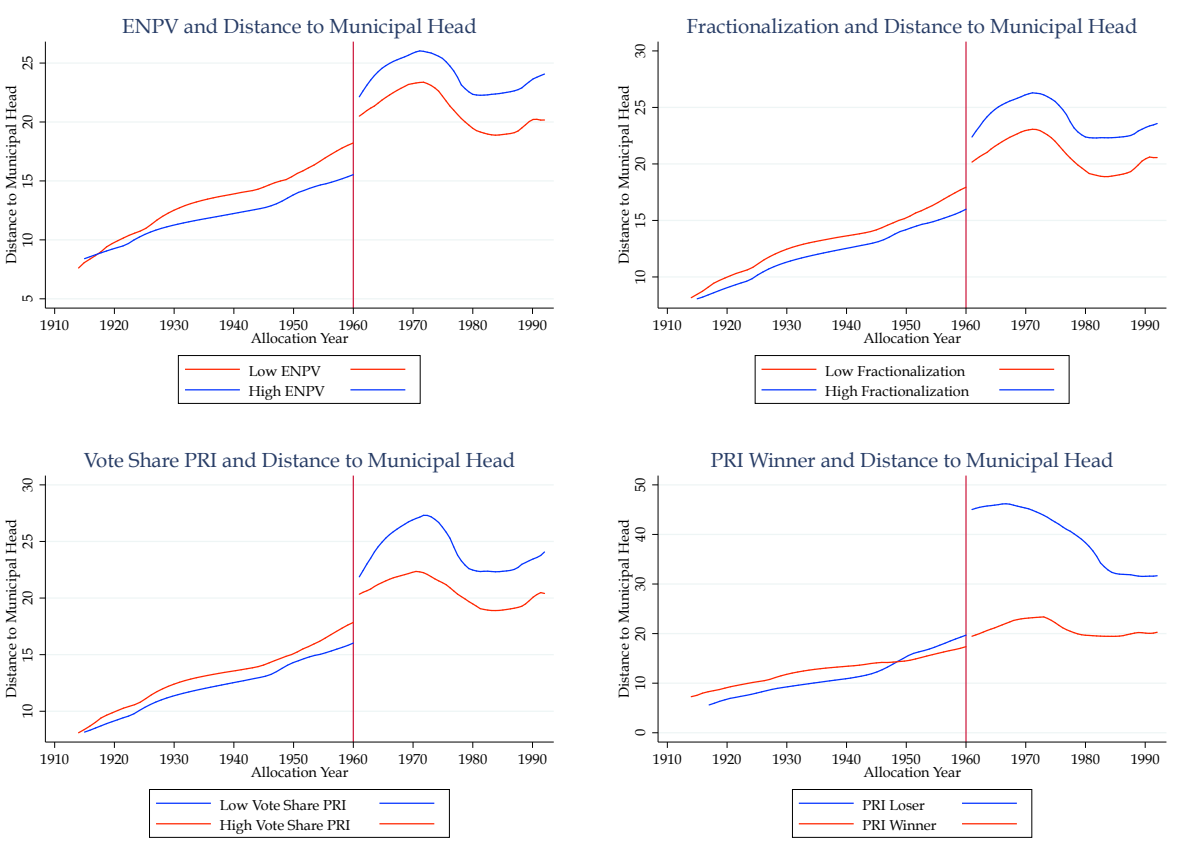
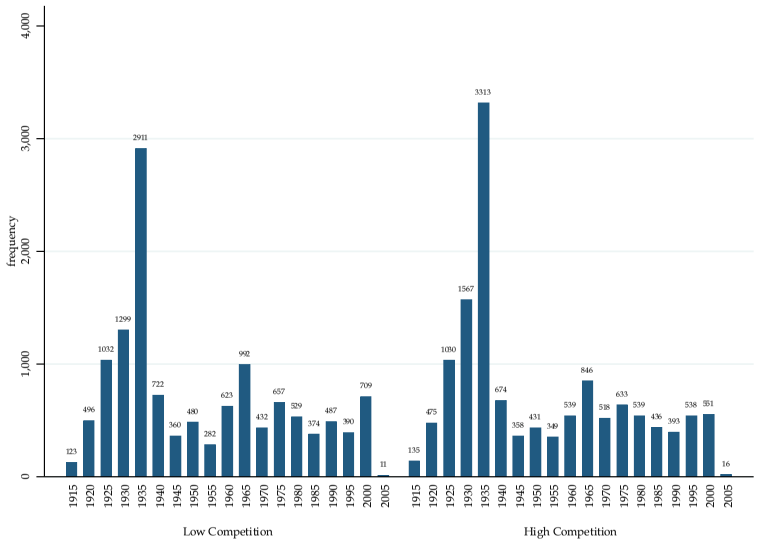
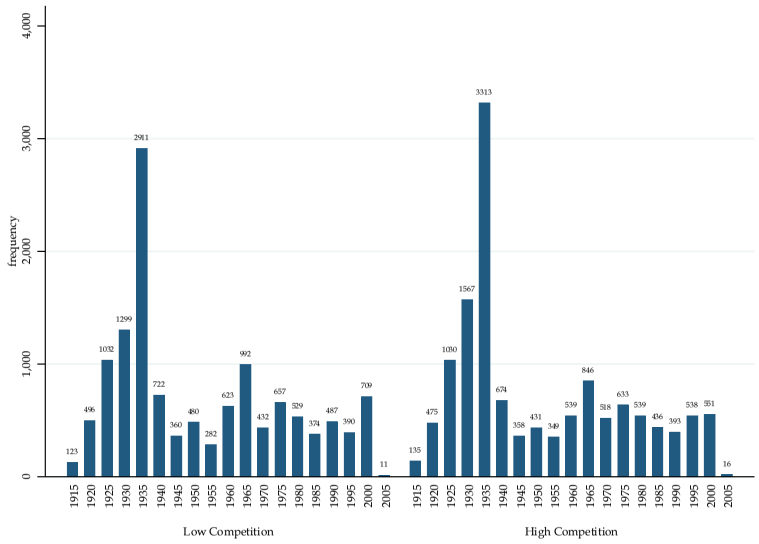


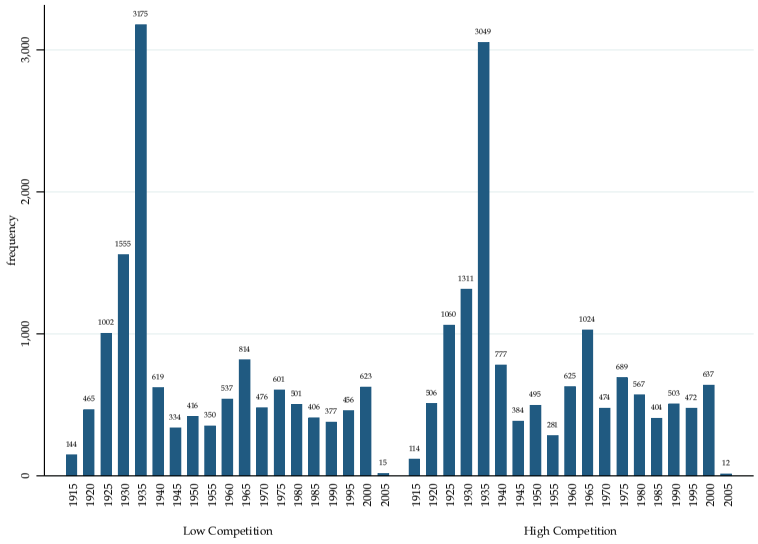
Figure 3: Political Competition Measures and Allocation of Ejidos Overtime



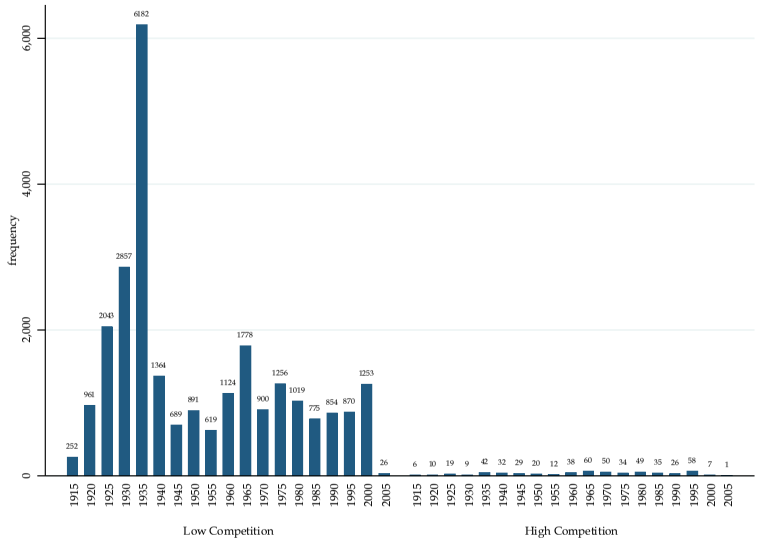
A) Effective Number of Political Parties



B) Fractionalization



C) Vote Share for the PRI in the Top Two



D) PRI Incumbency

Note: High competition corresponds to values above the median of each variable

A Appendix: Computing ejidal distances to municipality heads

Let us assume a situation with three ejidos E_1, E_2 and E_3 that were allocated across four localities ℓ_1, ℓ_2, ℓ_3 and ℓ_4 (*See Figure A-1*), and suppose that our goal is to calculate the distance from these ejidos to their municipality head.

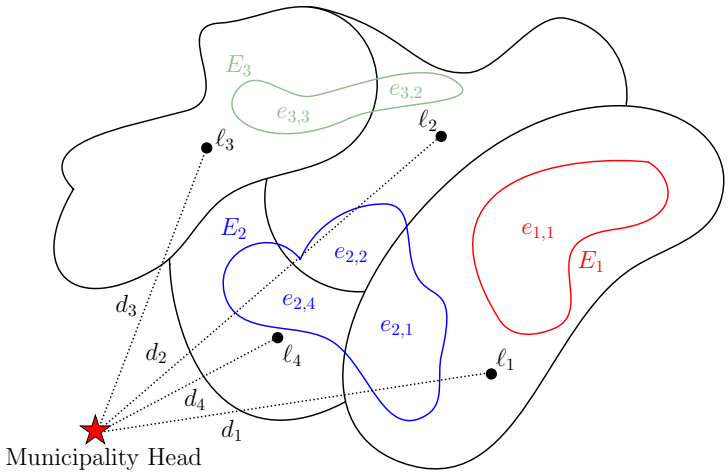


Figure A-1: Example: Computing ejidal distances to municipality heads

The procedure that we use to achieve this goal is the following: 1) We calculate the euclidean distance from each locality's centroid to its municipality head. In Figure A-1 those distances correspond to values d_1, d_2, d_3 and d_4. 2) We define as ejidal localities those which overlap spatially at least with one ejido. Accordingly, in Figure A-1 localities ℓ_1, ℓ_2, ℓ_3 and ℓ_4 are ejidal. 3) Finally, we assume that the population in those ejidos are distributed proportionally to the size of the overlapped localities and then we compute the weighted average distance from each ejido to its municipality head using the ejidal localities populations in 2000 as weights for the average.

In our example, the corresponding distances for ejidos E_1, E_2 and E_3 are defined as:

$$\begin{aligned}
\text{Distance}_{E_1} &= e_{1,1} \times (d_1) \\
\text{Distance}_{E_2} &= e_{2,1} \times (d_1) + e_{2,2} \times (d_2) + e_{2,4} \times (d_4) \\
\text{Distance}_{E_3} &= e_{3,2} \times (d_2) + e_{3,3} \times (d_3)
\end{aligned}$$

In this case the weights are:

$$e_{2,1} = \frac{Pop_{\ell_1}}{Pop_{\ell_1} + Pop_{\ell_2} + Pop_{\ell_4}}, e_{2,2} = \frac{Pop_{\ell_2}}{Pop_{\ell_1} + Pop_{\ell_2} + Pop_{\ell_4}}, e_{2,4} = \frac{Pop_{\ell_4}}{Pop_{\ell_1} + Pop_{\ell_2} + Pop_{\ell_4}}$$

$$e_{3,2} = \frac{Pop_{\ell_2}}{Pop_{\ell_2} + Pop_{\ell_3}}, e_{3,3} = \frac{Pop_{\ell_3}}{Pop_{\ell_2} + Pop_{\ell_3}}, e_{1,1} = 1$$

B Appendix: Additional Robustness Exercises

This Appendix presents additional robustness exercises for our baseline results. We start in Table A-1 by including a full set of quinquennial fixed effects, in addition to the simple $Post_{e,m}$ dummy. That is, we allow for ejidos allocated within a given qinquennium to have a different average distance to municipality heads. Our key coefficient for the interaction between political competition and the Post 1960 dummy is very precisely estimated, and is always significant at more than the 95% confidence level. More importantly, it is similar in size to that reported in our basic Table 4, across all measures of political competition.

As noted in the main text, we also have an alternative measure for political competition which relies on dynastic political families. The measure takes into account how often the last names of municipal presidents are repeated through the years and is calculated as the normalized residuals of the following regression, using all last names of all municipal presidents between 1929 and 1990:

$$\text{Frec}_{m,t} = \alpha_1 + \alpha_2 \text{NatFrec}_t + \alpha_3 \cdot t + \alpha_4 \text{NumberOfCandidates}_{m,t} + e_{m,t}$$

In this expression, Frec$_m t$ is the maximum repeated frequency of last names in municipality m, and NatFrec the same variable at the country level. We then use two measures of this variable: the previous continuos measure and a simple indicator variable if the there were repeated last names.

Graphically exploring our basic hypothesis as embedded in equation (9) using this alternative measure is, like with the baseline competition measure, very suggestive of both the validity of our identification assumption and of the existence of an intentional manipulation of the distance of allocated ejidos to forestall state capacity in more competitive places. In Figure A-2 we notice that before 1960, at times when the PRI's power was not contested, both types of municipalities trend together. After 1960 there is an abrupt increase in distance of the allocations and in fact in terms of the magnitude of the effects, there seems to be a larger gap between High and Low Dynastic municipalities relative to what we had found for the baseline competition measures.

Table A-2 runs our set of both basic and more demanding specifications (equations (9) and (14), respectively) for the dichotomous and continuous measures of political dynasties. Again, regardless of whether we control for the existing stock of allocations, and for both measures of dynastic prevalence, we find that compared to the earlier period, the PRI granted more distant ejidos after 1960 in less dynastic places.

Table A-1: Additional Robustness - Quinquennial fixed effects

	(1)	(2)	(3)	(4)
Dep Var: Distance to Mun. Head				
Post 1960	-0.1526	-0.0696	0.3722***	0.2805**
	(0.0959)	(0.0755)	(0.1187)	(0.1090)
Post 1960 × Competition	0.1205***	0.3389***	-0.4184***	-0.2576***
	(0.0416)	(0.0977)	(0.1199)	(0.0944)
Competition Measure:	ENP	Fract.	PRI Vote	PRI Inc.
Municipality Fix Effects:	✓	✓	✓	✓
Quinquennial Fix Effects:	✓	✓	✓	✓
Observations	18,052	18,052	18,052	18,052
R^2	0.5785	0.5787	0.5788	0.5787

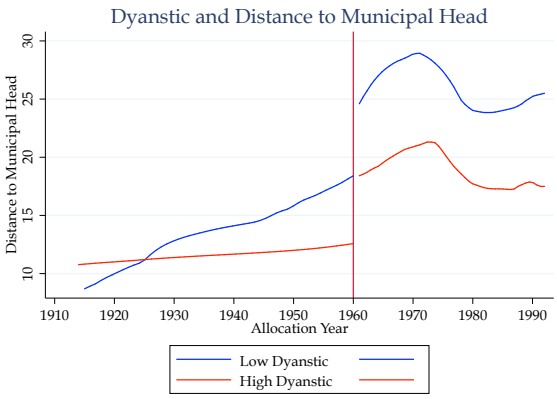
Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Table A-2: Dynastic Measures - Baseline and Controlling for Stock of Allocated Land

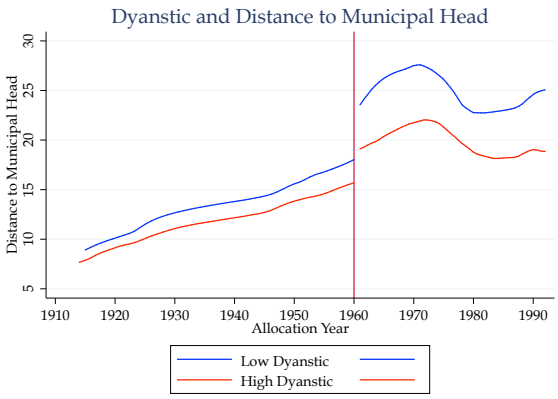
	(1)	(2)	(3)	(4)
Dep Var: Distance to Mun. Head				
Post 1960	0.1527***	0.1543***	0.1518**	0.1574***
	(0.0214)	(0.0029)	(0.0219)	(0.0257)
Post 1960 × Dynastic	-0.1148**	-0.1177**	-0.1168**	-0.1226**
	(0.0528)	(0.0029)	(0.0486)	(0.0497)
Stock Ejidos		0.0038***		0.0038***
		(0.0008)		(0.0008)
Stock Ejidos × Dynastic		-0.0028***		-0.0030***
		(0.0009)		(0.0009)
Dynastic Measure:	Dummy	Dummy	Continuous	Continuous
Observations	18,052	18,052	18,052	18,052
R^2	0.5832	0.5845	0.5833	0.5846

Robust standard errors in parentheses clustered at municipality level, *** p<0.01, ** p<0.05, * p<0.1.

Figure A-2: Dynastic Measures and Distance to Municipality Head



Dummy Measure (High = 1, Low = 0)



Continuous Measure