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Abstract

This paper analyzes how changes in the concentration of political power affect long-run development. We study Brazil's military dictatorship whose rise to power dramatically altered the distribution of power of local political elites. We document that municipalities that were more politically concentrated prior to the dictatorship in the 1960s are relatively richer in 2000, despite being poorer initially. Our evidence suggests that this reversal of fortune was the result of the military's policies aimed at undermining the power of traditional elites. These policies increased political competition locally, which ultimately led to better governance, more provision of public goods, and higher income levels.

JEL Codes: D72, O43, N46.

Keywords: Political power, elites, regime transition, economic development.

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1 Introduction

How political power is distributed and maintained within a society lies at the core of most theories of why institutions affect economic development.[1] The central idea is that when political power is narrowly distributed, the political elites adopt extractive institutions to concentrate economic rents and use clientelistic practices to sustain their political power (Acemoglu and Robinson, 2006a; Baland and Robinson, 2008; Anderson et al., 2015). Thus, when shocks to the balance of political power occur, they can alter the political equilibrium and affect long-run economic development (Acemoglu et al., 2005). But whether this prediction holds true empirically has been difficult to substantiate. It is hard enough to identify and quantify changes in the distribution of political power, let alone assess their effects over time.

In this paper, we study how changes in the concentration of local political power affect long run development using historical data from Brazil.[2] Throughout much of Brazil's political history, local politics was dominated by family-based oligarchies. These traditional elite families controlled most of the economic resources and alternated power at the municipal and state levels.[3] But in 1964, Brazil transitioned to a military dictatorship that would last for 21 years and disrupt the balance of power of the traditional elites. During their regime, the military-led governments adopted a technocratic approach to policy making and implemented a series of economic and political reforms designed to weaken the traditional elites, who the military viewed as an obstacle towards building a strong national state necessary for economic development (O'Donnell, 1979; Skidmore, 1988; Hagopian, 1996). These reforms ushered in a new class of local politicians to compete in local elections that the military continued to hold in order to legitimize their power. As a result, political competition increased at local level both during and after the dictatorship.

We exploit the dictatorship as a shock to the political power of traditional elites and present the first systematic large-scale evidence on how changes to political power affect long-run development.[4] To estimate these relationships, we assemble several original historical datasets at the local level, including data on the identity of all the mayors from the states of Ceará, Minas Gerais, and Paraíba for the period of 1947 to 2000. Using the surname of these mayors, we identify who belonged to the same political dynasty and construct a measure of political concentration; namely, a Herfindahl

[1] See North and Weingast (1989), Sokoloff and Engerman (2000), Acemoglu and Robinson (2012).

[2] We adopt Acemoglu and Robinson (2006b, p.173) definition of political power: "a measure of how influential a particular group (or individual) is in the political arena when there is conflict over which policy should be implemented."

[3] See for example Leal (1977), de Carvalho (1982).

[4] Related work that examine long-term effects of institutions include Banerjee and Iyer (2005), Nunn (2008), Dell (2010), and Naritomi et al. (2012).

index of the share of terms that each family governed a municipality. We also collected election data during this period and digitized five decades worth of agricultural and population censuses.

We begin our analysis by documenting a striking "reversal of fortune". Prior to the dictatorship, municipalities that were more politically concentrated were also less economically developed. Consistent with historical accounts, these places tended to be more rural, less populated, and more reliant on the agricultural production of crops such as sugar and cotton. After the dictatorship, however, we see a reversal in the relationship between political concentration pre-dictatorship and economic development, as measured by per capita income in 2000. Thus, despite being poorer at the beginning of our sample period, the municipalities that were relatively more politically concentrated before the dictatorship became relatively richer some 60 years later. This relationship is robust to the inclusion of a number of additional controls that are likely to have affected long-run economic development, such as geographic characteristics, initial demographic differences, soil quality, the structure of agricultural production, initial differences in political ideology, and land inequality.

What explains the reversal? We argue that the reversal reflects changes in local-level political competition that occurred when the military tried to centralize authority out of the hands of the traditional elites. The military targeted more politically-concentrated municipalities and promoted entry of new candidates in those regions. This led to an increase in political competition that persisted over time. This, in turn, translated into better governance, higher provision of local public goods, and consequently higher incomes.[5] To substantiate this argument, we present empirical evidence consistent with every part of the causal chain. In particular, we show that municipalities that were initially more concentrated before the dictatorship become more politically competitive in the long run. We also find that higher levels of initial political concentration are associated with relatively lower contemporaneous levels of illiteracy and infant mortality rates. Moreover, these municipalities also exhibit relatively lower levels of corruption as detected by Brazil's random audit program.

How did the military undermine the political power of local elites? Once the military assumed control, it transformed Brazil's multi-party system into a two-party system that forced politicians to decide between a pro-government party (ARENA) or a moderate opposition party (MDB). At the same time, the military wanted to bring in new politicians who they could trust (Sarles, 1982;

[5] See Lizzeri and Persico (2004) for a theory that links political competition to better governance and provision of public goods and Arvate (2013) who finds that electoral competition in Brazil's municipalities improves education and health outcomes.

Power, 2000). But by promoting their own candidates, they risked losing the elections by having the traditional elites, who were still politically powerful at the local level, join the opposition party. To avoid this possibility, the military created a new balloting system called the *sublegenda*. This system allowed multiple candidates to compete under the same party: the candidate with most votes, from the most voted party, was elected mayor. With the *sublegenda* system, the military could accommodate their loyalists and the traditional elites all under ARENA's party umbrella (Soares, 1982). Although this policy was introduced nationwide, it was implemented unevenly across municipalities. An important contribution of our study is that we provide empirical evidence on the implementation of this key policy across municipalities.

If, as the historical accounts suggest, the military introduced the *sublegenda* system to break the monopoly of power of traditional elites without risking electoral defeats, then we should expect places that were initially more politically concentrated to use the system more often. This is precisely what we find. Moreover, when we estimate the effects by party, the results only appear for the ARENA party. We also find that traditional elites competed against new contestants more often in politically-concentrated municipalities during the dictatorship.

In addition to these *de jure* electoral reforms, the economic policies of the military also sought to reduce the *de facto* economic power of the traditional elites. Starting in the late 1960's, the military prioritized the modernization of the agricultural sector. Part of their strategy was to promote the emergence of a new class of agricultural producers that were more efficient and could increase agricultural exports (Graham et al., 1987; Houtzager, 1998). These new producers presented a direct challenge to the oligopolies that traditional elites typically controlled. A key policy to support the modernization and creation of new agricultural businesses was the use of subsidized credit. Between 1970 and 1980, the amount of credit available to farms increased 22-fold. Our results indicate that municipalities where power was more concentrated prior to the dictatorship received relatively more government credit. We find no such relationship for the allocation of private credit. Moreover, we find evidence that the military economic policies led to the emergence of new agricultural businesses. Municipalities that were more politically concentrated prior to dictatorship experienced a large increase in the number of farms, relative to municipalities with lower levels of political concentration.

We interpret these economic policies as an additional channel by which the military was able to diminish the political power of traditional elites. However, these policies do provide support for an alternative interpretation to the reversal. The development gains of the politically concentrated municipalities may have been due to the modernization efforts in the agricultural sector as opposed

to the increase in political competition. Nevertheless, there are several reasons why this alternative explanation is unlikely. We do not find that initial political concentration is correlated to the mechanization of agriculture or to sectoral composition of employment, which are typically associated with modernization of the agricultural sector. Furthermore, our main findings on the reversal of income levels are robust to controlling for the changes in agricultural inputs and in sectoral composition.

Our paper relates to a large body of work in economics and political science on the importance of political competition for economic performance (Becker, 1958; Stigler, 1972; Becker, 1983; Wittman, 1989; Przeworski and Limongi, 1993; Powell, 2000). Studies have shown that competitive elections are associated with the entrance of high-quality challengers (Carson et al., 2007; Galasso and Nannicini, 2011) and improvements in the responsiveness of politicians (Besley and Case, 2003; Griffin, 2006; Aidt and Eterovic, 2011; Besley et al., 2010). Although our study also highlights the virtues of political competition, our focus – in contrast to much of the empirical literature – is not party competition, but rather on competition across political families. This is relevant because in many developing countries, political parties are weakly institutionalized and the real fight for political power occurs between families, ethnic groups, or local chiefs. In this respect, our paper is closely connected to Acemoglu et al. (2014) who use the colonial organization of the chieftaincy in Sierra Leone to study the impact of local political competition on long-term economic outcomes. They show that localities with fewer ruling families have worse development outcomes today. Different from their work, however, we study how changes in a country's political regime can affect political competition, and thus long-run development, locally.[6]

Our paper also contributes to the literature on political dynasties. While dynasties have been documented and studied in various settings (Dal Bó et al., 2009; Querubin, 2016; Geys, 2017), we have limited empirical evidence on the consequences of political dynasties for economic outcomes. Besley and Reynal-Querol (2017) use data on hereditary leaders across countries and find that economic growth is actually higher in polities with hereditary leaders when executive constraints are weak. George (2020) uses historical data on legislators in India to examine effects of dynastic politics on selection and performance in office. He finds that descendants from previous politicians

[6]Our study also relates to a historical literature that shows how large macro-level events can affect long-run outcomes through changes in the political equilibrium. For example, Acemoglu et al. (2011) show that the occupation of German territories by the French revolutionary armies led to various radical institutional reforms and the emergence of a new class of political elites that increased economic growth. Martinez-Bravo et al. (2017) study how democratization affected the persistence of old-regime elites in Indonesia. They find that when these elites faced elections sooner in the democratic transition, they were less likely to persist in power, which led to lower elite capture and better development outcomes. Dittmar and Meisenzahl (2020) show that shocks to religious and political competition induced by the Protestant Reformation drove the adoption of institutions that support public goods across German cities in the 1500s.

perform poorly in office and are negatively selected relative to other politicians. He also finds that localities dominated by dynastic politicians are poorer and have worse public good provision. We contribute to this literature by documenting how regime changes can disrupt political dynasties at the local level, promote competition, and affect long-term economic development.

We have organized the rest of the paper as follows. The next section outlines our argument and provides supporting historical evidence. Section 3 describes the data and our measure of the concentration of political power. In Section 4, we describe our main findings. Section 5 concludes the paper.

2 Our Argument and Historical Background

We hypothesize that Brazil's transition to a dictatorship in 1964 had long-lasting effects on the distribution of political power at the local level. Places that were more politically concentrated prior to the dictatorship became increasingly more competitive locally. We further argue that the change in the distribution of political power was the result of several political and economic reforms implemented by the military dictatorship. These reforms weakened the power of the traditional political families, vis-a-vis new local entrants who had the support of the military. As Brazil eventually transitioned back to a democracy, the increase in political competition not only led to more political contestation during the democratic period, but also to less corruption, better public goods provision, and ultimately higher income levels for its citizens. In this section, we provide some historical accounts consistent with our argument. The next subsection discusses how political power was distributed prior to the dictatorship. We then describe Brazil's transition to the military dictatorship and the set of political and economic reforms that affected the political power of the local elites. Finally, we briefly describe Brazil's transition back to democracy and the importance of local governments for the distribution of public goods and welfare of its citizens.

Local politics prior to the dictatorship

After 12 years under the rule of Getúlio Vargas, Brazil democratized in 1945. It marked the first time Brazil held relatively free and fair elections that featured secret ballot and political parties at the national level. The three major political parties included: Partido Social Democrático (PSD), a center-left populist party founded by the political elites who had supported Vargas; União Democrática Nacional (UDN), a party comprising mostly of the political elites who had lost power

under the Vargas regime; and Partido Trabalhista Brasileiro (PTB), which had its origins in the urban labor movement and did not include members from the regional oligarchies.

Despite the emergence of national parties, powerful traditional families continued to dominate politics at the local level. These families were often large landowners that cultivated cash crops, such as sugar and cotton, in large plantations that employed many workers. They exploited their economic resources to create extensive clientelistic networks that allowed them to occupy key political offices. As Fausto (1989) states: "Productive resources were controlled by a tiny minority; there was an almost total absence of public or private social welfare ... Protection, in the form of land, financial assistance or employment, was exchanged for a guarantee of loyalty which, depending on individual cases, meant being prepared to defend the [political boss] physically, or obey his wishes at the ballot box".

The traditional families controlled more than the distribution of local resources. Their family networks, in effect, supplanted political parties locally. As Lewin (2014) write, family ties "underlay the base of a politician's network of kin and political friends. From it he [the politician] constructed the core of his personalistic political following, a family-based group that organized and delivered his votes locally, defended his partisan interests in his home município, and served him loyally as officeholders or bureaucratic appointees... By spanning different levels of government, family-based networks offered the political ligatures binding the ruling oligarchy together. In addition, family-based networks bound the oligarchy's leadership stratum to family-based groups in the municípios (...) virtually every state political party was associated with either the rule of one family or one individual's personalistic domination." (Lewin, 2014, p.287)

Political parties were highly decentralized and relatively undisciplined organizations. As a result, the party affiliations of traditional families were not determined by ideological or programmatic differences, but rather by local rivalries (Hagopian, 1996; Mainwaring, 1999). Clientelism shaped party competition and in most local elections, electoral coalitions were formed based on personal and tactical considerations. These family networks would also extend over generations: "If a politician's father, father-in-law, or uncle was a political figure of some import, the young candidate "inherits" the personal votes of his or her political progenitor and progressively fills the seats vacated by the elder politician." (Hagopian, 1996, p. 131)

In sum, the distribution of local political power ran along familial lines. Traditional families were able to maintain large clientelistic networks with their economic power and access to state resources. Although political parties existed, they lacked programmatic content or organizational significance. In the analysis to follow, we will define political concentration at the family level as

opposed to the party level.

Brazil's Transition to a Dictatorship

In March 1964, the military initiated a coup d'état on the presidency of João Goulart. The military's coup was largely a response to a set of redistributive and populist policies that the political elites felt would undermine their political and economic interests (Skidmore, 1988).[7] Most elites expected a caretaker military regime that would quickly devolve power to the main oligarchic parties. Instead, the military decided to retain power for more than 20 years. The main motivation for the military to do so was twofold: to industrialize and to reorganize a political system that they viewed as corrupt and clientelistic, and thus a major obstacle to economic growth and political stability (Stepan, 1973).[8]

To meet these objectives, military leaders felt it imperative to concentrate political power in the hands of the federal executive and away from the traditional families. As Soares (1982) writes: "The *política coronelista* [a powerful person that controlled politics locally] was never to the liking of the Brazilian military, all forms of local power were seen as detrimental to a strong national state, which the military groped for since the Old Republic. In 1965, when the opportunity presented itself, they tried to impose a party system that would leave no room for local family politics". This led the military to implement several political and economic reforms that profoundly impacted intergovernmental relations and redefined the traditional political elites' relationship with the state (Roett, 1999).

Political Reforms Shortly after assuming power, the military instituted a series of executive decrees, known as *Institutional Acts*, aimed at expanding the power of the executive over the legislative power. The laws allowed the government to purge dissidents, suspend the political rights of

[7] João Goulart's raise to power in 1961 was highly unexpected. Goulart was a left-wing politician affiliated to PTB. He won the vice-presidency in a separate ticket election from the presidency which was won by Jânio Quadros, an UDN politician. The presidency of Quadros was characterized by a high degree of political instability and he resigned just 8 months after taking office. Goulart was considered a dangerous politician by most Brazilian elites due to his strong ties to leftist movements. During his term he tried to implement a number of policies that were considered a threat to the economic interests of several groups, such as land reform or enfranchisement of illiterate people.

[8] There is still some debate among historians about the military's motives to modernize the economy and limit the power of traditional elites. On the one hand, some argue that their corporate interests may have been more aligned with those of industrial elites and new entrepreneurs that had more to gain from the modernization of agriculture and the reduction of corruption. On the other hand, the threat of communism and a potential revolution is also described as a reason for trying to break clientelism and the power of traditional elites (Soares, 1979; Hagopian, 1996; Houtzager, 1998).

any citizen, and cancel the mandates of elected politicians. The president was also empowered to pass constitutional amendments and expenditure bills with only a simple majority from congress (Skidmore, 1988).

One of these acts abolished all existing parties and set up new rules for forming new parties. Effectively, the law transformed a multi-party system with 13 parties in 1964 into a two-party system, which forced politicians to decide between the pro-government party (ARENA) and the opposition party (MDB) (Skidmore, 1988). Most politicians from the conservative parties UDN and PSD joined ARENA, including 65 percent of elected federal legislators (Power, 2000, p. 55).

This act was then followed by a decree that replaced the direct election of governors with indirect elections by state legislatures, which in effect gave the military power to name the heads of state governments. The decree also abolished direct elections for mayors of state capitals and designated national security cities, and gave state governors the power to appoint these mayors. The remaining municipalities, which constituted the vast majority, continued to hold local, competitive elections. The military saw these elections as way of legitimizing their government (Hagopian, 1996).

These institutional changes induced significant changes in the distribution of political power across Brazil. To control the state executive, and thus the political elites within a state, the military leaders appointed to prominent government positions, technocrats with non-political backgrounds and only minimal links to the traditional political groups. For example, of the 22 governors selected in 1970, 50 percent of them were technocrats and non-political, compared to 1966 when only two state governors were technocrats (Samuels and Abrucio, 2000). As Jenks (1979, pp. 221-222) describes: "By the 1970 elections, President Médici already had men personally loyal to him in key positions in the ARENA national directorate and state directorates. At the beginning of the 1971 legislative session, he was able to select men to fill the ARENA congressional leadership positions as well ... Médici controlled ARENA at the national and state levels, recruiting the party leadership and increasing the centralization of authority under the President."[9] A similar point is made by Sarles (1982) "In general, the military gave ARENA leadership positions to members of the traditional political elite, who maintained their old party organizations and ties within the new government party. At times, however, the military presidents attempted to create a completely different kind of political party, free of clientelism and traditional political bargaining. President Médici's "political renewal" strategy for ARENA, for example, had a clear corporatist orientation... As a result, he selected technocrats and political unknowns for top cabinet positions and many governorships." In

[9]Emílio Garrastazu Médici was one of the 5 presidents that served during the military dictatorship. He governed between 1969 and 1974.

the state of Santa Catarina, for example, the appointment of the governor Colombo Salles in 1971 by the military regime was aimed at reducing the political power of local oligarchies and fostering political renewal at the municipal and state-levels (de Souza Carreirao, 1988, pp.174-175).

Despite the military's efforts to introduce new leadership, traditional elites remained powerful with their large clientelistic networks and their ability to mobilize votes at times of elections. This created a problem for the military because even though they wanted to promote their own candidates, they could not afford to let the traditional elites join the opposition party, and potentially risk electoral defeats. As a result, the military introduced the *sublegenda* voting system, which allowed them to accommodate both their loyalists and the traditional elites all under ARENA's party umbrella (Soares, 1982).

The *sublegenda* was a balloting mechanism whereby each party could nominate up to three party tickets for the mayor and senate elections. The votes for the party would be the sum of the votes of each ticket or *sublegenda*. The winner would be the candidate with the largest vote count of the most voted party. For example, ARENA could have candidates running for mayor as ARENA 1, ARENA 2, and ARENA 3. The military saw this system as a way to keep within the same party, factions that were hostile to one another (Power, 1997).

Even though the *sublegenda* system was implemented to help guarantee victories for ARENA in local elections, it also fostered political competition. As Samuels and Abrucio (2000) explain it: "ARENA began to split into two factions: one led by politicians with little popular support and few links to state elites, but with extensive links to the military high command, and another led by traditional state elites who had developed careers prior to 1964." By allowing for intra-party competition in municipalities that previously would have been dominated by one or two families, the *sublegenda* facilitated the entry of new political players that would compete against traditional elites (Schmitter, 1973; Hagopian, 1996; Machado Madeira, 2006).

Economic Reforms The dictatorship marked a period in which Brazil sought to industrialize through an import substitution strategy that among other things, prioritized the modernization of the agricultural sector. The military implemented several interventions in the rural areas that included the provision of highly subsidized agricultural credit aimed at the purchase of fertilizers and tractors, the provision of agricultural extension services, and investment in infrastructure such as roads (Graham et al., 1987). To carry out these policies, the state had to develop capacity in the rural areas to avoid the traditional elites from capturing this new injection of state resources. "The agrarian project therefore represented a direct challenge to local authority – it entailed gaining a

degree of control over labor, land, and capital in the countryside ... It sought to centralize authority out of the hands of the oligarchies by enacting new legislation and created new bureaucratic machinery in rural areas to circumvent existing state and local governments." (Houtzager, 1998) By appointing to these key local positions technocrats who wanted to break away from old-style politics and build their own political base, the military excluded traditional politicians from state patronage, while also introducing new economic and political players who were the beneficiaries of the economic reforms (Sarles, 1982).

In sum, the military's efforts to centralize and exclude the traditional families from state resources and largesse, while also attempting to maintain electoral legitimacy, affected the distribution of political power both nationally and locally. At the local level, the introduction of the *sublegenda* system and the redistribution of economic resources away from the traditional families increased political competition in places that had been ruled by only a few or, in many cases, a single political family.

Democratic Transition, Decentralization, and Political Competition

Brazil's democratic transition was the slowest of all the transitions in Latin America. It started in 1974 when the newly-elected president Ernesto Geisel announced his project for a gradual and secure political liberalization, but it was only completed in 1985 with the (indirect) election of a civilian president.

Many scholars have argued that the peaceful democratization process was a negotiated transition between the military government and state-level elites and that it had negative consequences for Brazil's democracy because it generated a significant level of political continuity. As such, it allowed for the persistence of many incumbents of the authoritarian regime (Mainwaring, 1986; Abrucio, 1998) and for the large influence of traditional elites in the design of the political institutions (Hagopian, 1996).

However, the new democratic period that emerged since 1985 has also seen the quality of Brazilian democracy improve in several dimensions. The enfranchisement of illiterate citizens in 1985 resulted in 55 percent of the population going to the polls in the presidential election of 1989 compared to only 22 percent in 1960. Brazilian politics has also become significantly more competitive. While during the 1946-1964 period two parties had the most influence, after 1985 the low barriers to entry allowed a large number of parties to compete and contest power in both local and national elections, including parties that represented the interests of the poorest individuals such as

the Worker's Party (PT) (Weyland, 2005, p. 96-98).

The new democratic constitution, promulgated in 1988, increased the financial resources available to municipalities as it improved the capacity of municipalities to raise revenue, increased intergovernmental fiscal transfers and allowed for more discretion over expenditures (Willis et al., 1999). Local governments were given significant political autonomy: they were free to develop municipal constitutions and allowed significant discretion over land and urban legislation. Municipalities were also given the responsibility (or co-responsibility) for the delivery of social services such as health, transportation and primary education with an increase in earmarked transfers to fulfill these duties. Finally, local governments were free to institutionalize channels of direct popular participation into public affairs, such as the participatory budgeting adopted by many municipalities (Baiocchi, 2006). The provision of education and health services at the local level has made political selection and political competition at that level a key ingredient for the supply of high quality public services in Brazil.[10]

3 Data

Our data covers three states and spans the period 1940-2000. We digitized several historical records, including agricultural censuses, population censuses, and election results prior and during the military dictatorship. In this section, we describe the main data sources and present some descriptive statistics. We provide a more detailed description of our data in Section 6.1 of the Appendix.

Political Concentration

We collected data on the identity of all the mayors that held office from 1947 to 2000 for the states of Ceará, Minas Gerais, and Paraíba. We selected these states based on their data availability. Appendix Table A1 illustrates the structure of our data for two municipalities. For each municipality and each election year, we have the name of the winning mayor and his/her party affiliation.[11] Prior to 1972, municipalities held elections in different years. Appendix Table A2 tabulates the number of elections that took place each year by state. For a subset of municipalities and periods, we also

[10] See Arvate (2013) for evidence on the relationship between political competition and the quality of public services in Brazil.

[11] We will use the party affiliation of politicians to infer the adoption of *sublegendas* during the military dictatorship. If a *sublegenda* was used, the party name is followed by a number indicating the sub-ticket of the candidate. We discuss this measure in more detail in Section 4.3.

have information on vote shares and the identity of losing candidates. We will describe these data in more detail as they become relevant.

As we described in Section 2, political power in Brazil has been historically organized around familial lines. Thus, we use our data on the identity of the mayor to infer their family network. Specifically, we assume that mayors belong to the same family if they share at least one common surname. It is common in Brazil for individuals to have at least two surnames. The first surname is the mother's family name and the second belongs to the father's family name.[12] Column 4 of Table A1 indicates the family number that identifies family links based on common surnames within a municipality.[13]

The two examples shown in Table A1 are illustrative. In the municipality of Carandaí, in Minas Gerais, a member of the Pereira family had been power from the municipality's first election in 1947 up until the start of the dictatorship. During the dictatorship, the municipality elected members from three new families (Amaral, Teixeira de Carvalho, Corsino de Oliveira) in addition to a member of the Pereira family. Although the Pereira family survived the transition, political competition in Carandaí increased during the dictatorship. Panel B shows the history of mayors for the municipality of Campos Sales, in Ceará. Prior to the military dictatorship, two families alternated power. But during the dictatorship, only one of these families managed to hold office, as several new families came to power. These examples illustrate how different municipalities may have experienced different changes in the distribution of political power after the introduction of the dictatorship.

To measure political concentration before the military dictatorship, we construct a Herfindahl index based on the share of terms governed by the same political family. Specifically we compute the Herfindahl index, H_{mt}, for municipality, m, during period t as:

$$H_{mt} = \sum_i \left(\frac{\text{Number of elections family } i \text{ has been in power}_{imt}}{\text{Total number of elections}_{mt}} \right)^2.$$

The value of the Herfindahl index for the two municipalities shown in Table A1 is 1 for Carandai, as one single family was in power during all pre-dictatorship years, and 0.5 for Campos Sales because two families alternated power.

[12] Most of the surnames of local mayors are not common. It is unlikely that two mayors that do not belong to the same family would share a surname. Nevertheless, we conduct a number of robustness checks for frequent surnames. See section 6.2 in the Appendix.

[13] A number of research assistants manually coded the family identifier variable and visually inspected the data to detect mistakes.

Table 1 provides summary statistics for this variable. The average political concentration for the municipalities in our sample prior to the dictatorship was 0.325, which implies that the effective number of traditional elites during this period (i.e. $1/H_{mt}$) was 3.08 families. However, this number masks a considerable amount of heterogeneity. In Figure 1, we present the histogram of our measure of political concentration prior to dictatorship. The values range from 0.16 to 1, which is equivalent to a range of six families evenly sharing power versus one.

In the next rows of Table 1, we present other measures of concentration of political power. We compute the average reelection rate of families for the three different periods.[14] It is important to note that during this period, the same mayor could only be elected to a single term. Before the dictatorship, 8.9% of local elections reelected the same family. During the dictatorship period this measure fell to 8.2% and it was 9.1% after the dictatorship.

The table also provides information on elite persistence across the regimes. In 73 percent of municipalities, at least one traditional family survived the transition to a dictatorship, and in 44 percent of our municipalities, a family was able to survive both transitions in and out of the dictatorship.

Additional data

Outcomes variables One of our main outcomes of interest is the log of income per capita in a municipality from the 2000 population census. This is our preferred measure of long-run development. We complement this measure with other variables from the population census, such as years of schooling, literacy and infant mortality rates. We also add data from Brazil's electoral commission to measure political competition during the 2000 municipal elections. With these data, we compute a Herfindahl index of vote shares for both the mayor and city council elections. To these outcomes, we also add a measure of local corruption using audit data from Brazil's federal audit program conducted between 2005-2010. Following Avis et al. (2018) we use the number of irregularities classified by auditors as either moderate or severe. Our final set of outcomes come from four decades (1960-1985) of agricultural censuses. We use these data to measure any changes to the agricultural sector during the dictatorship. Importantly, we observe the number and sizes of farms over time, as well as several agricultural inputs, including fertilizer, tractors, and electrification. These variables are summarized in Panel B of Table 1.

[14] For each municipality, we compute the likelihood that a family is reelected from one election to the next.

Control variables Brazil had large regional differences in economic development even prior to the dictatorship. To account for these differences, we digitized the 1940 agricultural and population censuses. From which, we construct several important socio-economic characteristics of the municipality, such as population size, employment rate, share of workers in the agricultural sector, average production of farms, and share of land devoted to large-scale production. One issue that arises when using historical data is that municipalities will split over time. When they do, we assign to the newer municipality the 1940 value of the municipality from which it originated. We then adjust our standard errors by clustering on the municipalities that existed in 1940.

Our control variables are summarized in Panel C of Table 1. The average population in 1940 is 30,625 inhabitants, with 39 percent of employment in agriculture. Literacy rates during this period were quite low, with over 72 percent of the adult population unable to read or write. On average, 19 percent of the population was black. Approximately 38 percent of the municipalities had a mayor from the UDN party (which later became a principal part of the military party) prior to the dictatorship, whereas only 13 percent of municipalities had a mayor from the PTB party. We also present summary statistics for rental prices in 1940. This variable measures the monthly rent of tenants, and we use it to proxy for income during that period. As we will show below, the variable strongly predicts current day income per capita.

4 Results

In this section, we present our main empirical specification and results. We begin by documenting the relationship between pre-dictatorship levels of political concentration and long-run development. To quantify the relationship, we estimate the following econometric model:

$$y_{ij} = \beta_0 + \beta_1 \text{pol\_concentration}_{ij} + \nu_j + X'_{ij}\theta + \varepsilon_{ij} \tag{1}$$

where y_{ij} indicates an outcome of interest (e.g. income per capita in the year 2000) for municipality i in state j. The variable $\text{pol\_concentration}_{ij}$ measures the level of political concentration before the military dictatorship. It is decreasing in the number of families sharing power during the period. The vector, X_{ij}, includes a number of municipal-level controls that we describe below. Our standard errors are clustered at the district level according to the municipal boundaries in 1940. This addresses the possibility of correlated shocks to municipalities that split during our study period.

The main coefficient of interest is β_1. It captures the marginal effects of an increase in the level

of political concentration on our outcomes of interest. For this coefficient to have a meaningful interpretation, we need to control for all the determinants of long-run development that correlate with political concentration. We examine its correlates in Table 2. Each row reports the OLS estimate of regressing pre-dictatorship political concentration on the variable indicated in each row separately, while also controlling for state fixed effects. We also report standardized-beta coefficients and corresponding p-values in columns 3 and 4, respectively.

Political concentration is correlated with a number of geographic and demographic characteristics measured in 1940. On average, politically-concentrated municipalities tended to be closer to the equator and less populated. They also had a greater share of the population working in agriculture and lower rental prices, suggesting that standards of living were lower in politically concentrated municipalities.

Political concentration is also associated with higher 1940 levels of production of sugar and cotton, which according to historical accounts were important sources of economic power among the traditional elites. We do not, however, find a robust correlation between land inequality in 1940 and political concentration. It is worth noting that our data on land inequality are only available for a subset of municipalities and are likely measured with error.[15]

Overall, the correlates presented in Table 2 paint a picture consistent with the historical accounts: traditional elites were more concentrated in more backward areas that relied on the agricultural production of crops such as sugar and cotton. In our main specifications, we will incorporate many of these covariates at baseline to mitigate endogeneity concerns.

4.1 Concentration of Political Power and Long-Run Economic Development

In this section, we provide evidence that the association between initial political concentration and economic development changed with the military dictatorship. In Figure 2a, we present a binned scatter residual plot between log rental prices in 1940 and levels of political concentration before the military dictatorship.[16] Although the 1940 census did not measure income per capita, rental prices are a good proxy for a municipality's level of economic development during this period.[17]

[15]The land Gini measure is computed using data on the number of farms per a given land size interval. Even though the 1940 census used 13 intervals, for reasons of anonymity it usually did not report the number of farms with holdings larger than 10,000 hectares.

[16]We partial out both variables using distance to the state capital. This allows us to control by the geo-spatial distribution of economic activity.

[17]Appendix Table A3 presents pairwise correlations between log rental prices, literacy rates, and share of the population working in agriculture, all measured from the 1940 census. Rental prices correlate strongly with each of these

The figure shows a steep negative association indicating that political power prior to the dictatorship was more concentrated in the poorer regions.

Figure 2b presents a similar residual plot to Figure 2a, but with log income per capita in 2000 on the vertical axis. The contrast is striking. Whereas Figure 2a depicted a negative relationship between economic development and political concentration, in Figure 2b per capita income in 2000 is positively correlated with political concentration pre-dictatorship. Despite being poorer at the beginning of our sample period, municipalities that were more politically concentrated before the dictatorship become relatively richer 60 years later. This relationship appears even though rental prices in 1940 and income per capita in 2000 are on average positively correlated (point estimate =0.143, robust standard error=0.011). In the Figure 3 of the Appendix, we present a figure analogous to Figure 2a, but using the share of the population working in non-agricultural sectors as a proxy for economic development in 1940. We find a similar negative association with pre-dictatorship political concentration.

We investigate the robustness and magnitude of these results in Table 3. In columns 1 and 2, we regress our main proxies of economic development in 1940 on the measure of political concentration pre-dictatorship. For these specifications, we include basic geographic and demographic controls (longitude, latitude, distance to the state capital, log population, share of protestants, share of black population, and share of foreigners; all measured in 1940). The point estimate in column 1 implies that all else equal, municipalities that had one family in power pre-dictatorship had 40% lower rental prices in 1940 relative to a municipality where 3 traditional families shared power.[18] In column 2, we also find a strong negative association between political concentration and the share of population working in non-agricultural sectors. In column 3, we examine whether the contemporaneous association between standards of living and political competition is also present in the post-dictatorship period. Here, we also find a negative correlation: municipalities where a single family holds power after the dictatorship have 17% lower income per capita relative to municipalities where 3 families share power.

In columns 4 and 5, we document the reversal in standards of living anticipated by Figure 2a. Municipalities more politically concentrated before the dictatorship, despite being poorer prior to the dictatorship, ended up having higher income levels in the year 2000. In the context of our

other commonly used proxies for economic development. The correlation between log rental price and the share of population working in agriculture is 0.55, whereas the correlation between log rental prices and literacy rates is 0.46.

[18]The average measure of political concentration pre-dictatorship in our sample is 0.35, which corresponds to 3 families sharing power. The change in political concentration between the average municipality and one where a single family in power is equivalent to 0.65 units. When multiplied by the estimated coefficient in column 1 we obtain -0.41, which approximately corresponds to a 40% reduction in rental prices.

previous example, the coefficient in column 4 implies that in municipalities where a single family was in power pre-dictatorship have 7.6% higher income per capita relative to municipalities where 3 families shared power during that period.

Of course, a natural concern is that this reversal could be driven by differences across regions in their economic and demographic characteristics. In Column 5, we add to our previous controls several 1940 socio-economic characteristics, including log rental prices. This regression, which is our main specification in later tables, includes state fixed effects, latitude, longitude, distance to the state capita, log population, literacy rate, share of blacks, share of protestants, share of foreigners, share of agricultural employment, and a quartic of log rental prices. After controlling for these variables, the point estimate becomes larger in magnitude and statistical significance.

In Table 4, we present some additional robustness checks that augment our baseline specification with additional controls. Column 1 shows the estimates of our preferred specification (Table 3, column 5) estimated on the sample for which we have information on the additional controls included in columns 2, 3, and 4. Column 2 controls for soil quality in the municipality to account for the possibility that municipalities with higher political concentration are endowed with higher quality lands. In column 3, we control for the amount of sugar and cotton production per farm in 1940. This alleviates the concerns that production in sugar and cotton may have been conductive for economic development at a certain point in time. In column 4, we add political controls. In particular, we include indicators for whether the UDN or PTB were in power prior to the dictatorship. These controls allow us to account for any ideological differences that might impact the types of policies adopted by more politically concentrated places. Finally, we include a Gini coefficient for land inequality as measured in 1940 in column 5. These data are only available for 848 of the municipalities in our sample. When our preferred specification is estimated on this sample, the point estimate on political concentration is 0.228, which is the same as what we obtain when the land gini is included as a control. This result mitigates the concern that land inequality may have had a positive impact on development outcomes.[19] Overall, these results suggest that our estimates are robust to the inclusion of a number of additional controls that may have affected economic development.

[19]For instance, in their study of landownership in the state of Cundinamarca, Colombia, Acemoglu et al. (2008) show that the land Gini as measured in the 19^{th} century is positively correlated with better development outcomes. Note that our results are similar even when we include higher order terms of land inequality as controls.

4.2 Political Competition and Quality of Governance

In this section, we show that the initially concentrated municipalities become more politically competitive over time. We argue that this increase in political competition and its subsequent impact on the quality of governance is a principal reason why these municipalities fared better in the long run.

Changes in Political Competition To investigate the extent to which political concentration persisted as Brazil transitioned in and out of the dictatorship, we estimate variants of Equation 1 using different measures of political competition as the dependent variable. Each regression includes the controls from our baseline specification presented in column 5 of Table 3. Column 1 of Table 5 presents the correlation between political concentration before and during the dictatorship. Had political concentration persisted during the transition to a military regime, then we should see a correlation close to 1. Instead, the point estimate is 0.088 (robust s.e.= 0.037). In column 2, we use political concentration post-dictatorship as a dependent variable and find an even smaller, statistically insignificant point estimate of 0.036 (robust s.e.=0.037). These results indicate that the level of political concentration pre-dictatorship is no longer predictive of which municipalities have higher levels of political concentration post-dictatorship. This also indicates that political concentration experienced larger declines in the municipalities that were more politically concentrated prior to the dictatorship, relative to those that were more competitive.[20]

Next, we examine whether political concentration prior to the dictatorship is associated with a reduction in the ability of political dynasties to perpetuate their power. In particular, we compute the reelection rates of incumbent families from one election to the next. During our study period, mayors were not allowed to serve two consecutive terms. Families circumvented this limitation by having another family member contest the subsequent election. For each municipality, we compute the average family reelection rates across our three different time periods. Columns 3 to 5 show the results when these variables are used as dependent variables. Prior to the dictatorship, political concentration was highly correlated with the likelihood the family would get re-elected. However, this association decays over-time. During the post-dictatorship period, municipalities that had high levels of initial political concentration no longer exhibit higher levels of family re-election rates.

In columns 6 and 7, we explore alternative measures of political competition in the post-dictatorship period. In particular, we compute the Herfindahl-Hirschman political concentration index in local

[20] If we use as dependent variable the *change* in political competition, the point estimate is -0.95 (s.e.=0.04). These results are available upon request.

elections by summing the squares of the vote shares of each candidate in a municipality. To be consistent with our proxies for long-run economic development, we measure political competition during the 2000 local elections.[21] This measure, which varies between 0 (more competition) and 1 (less competition), has the advantage that it can distinguish between elections that have the same number of candidates but differ in the candidates' level of electoral support and hence competitiveness. We find that the municipalities that were politically concentrated prior to the dictatorship became more politically competitive in the long run. The magnitude of the effects is consistent with the magnitude of our effects on the reversal of income. Municipalities where a single family was in power have a 7.7% lower level of political concentration for mayor and 26% for local councilor, relative to municipalities where 3 families shared power during that period.

Political Competition or Elite Identity? An important question is whether our effects are driven by the increase in political competition or because non-traditional elites are now being elected to office. We explore this question in columns 8 and 9. We regress the share of non-traditional families that held office during the dictatorship (column 8) or post-dictatorship (column 9) on our pre-dictatorship measure of political concentration. As we can see from the mean of the dependent variables, the share of non-traditional elites increases over time. But, these families were not more likely to hold office in more politically-concentrated places in either period. Although our estimates are not measured with a lot precision, these findings do favor the "change in political competition" interpretation, rather than a change in elite identity.

Governance Thus far, we have shown that as Brazil transitioned in and out of a dictatorship, places that were more politically concentrated before the dictatorship fared better in the long run. We also argue that this can be explained, in part, by the fact that these places also became more competitive politically. While political competition has been shown to improve economic outcomes in other contexts (e.g. Besley et al. (2010), Acemoglu et al. (2014)), it nevertheless raises the question as to what are the mechanisms. In Table 6, we investigate the relationship between political concentration prior to the dictatorship and local governance. If our findings on long-run development are in fact driven by political competition, then we would expect to find these traditionally concentrated places to have more responsive local governments. In columns 1 and 2, we estimate the effects for literacy rates and infant mortality, two human development outcomes that are highly influenced by the provision of local public goods. We find that higher levels of initial political

[21] Specifically, our dependent variable is $\sum s_i^2$ where s_i denotes candidate i's vote share in the 2000 municipal elections.

concentration are associated with significant improvements in these two outcomes. In column 3, we examine the incidence of corruption by using as a dependent variable the number of irregularities detected by Brazil's random audit program. This program randomly selects municipalities to undertake a detailed audit of their municipal government accounts. Consistent with the higher provision of public goods, the results indicate that municipalities with high levels of initial political concentration exhibit lower levels of irregularities linked to corrupt activities.[22]

4.3 How did the Military's Undermine the Political Power of the Traditional Elites?

One of the key political reforms introduced during the dictatorship was the *sublegenda* voting system. This system allowed multiple candidates to contest the elections under the same party umbrella. While the *sublegenda* system was allowed in all municipalities, it was not adopted in all of them. In this section, we investigate how political concentration affected the decision to adopt a *sublegenda.*

We measure the adoption of *sublegendas* by the name of the party of the winner of the election. When candidates run under a *sublegenda* the party affiliation appears with a numerical subindex (i.e., "1", "2", or "3"). One concern with this measure, however, is if a party ran under a *sublegenda* but lost to a party that did not use one. In this case, our indicator would be incorrectly coded as a zero. Fortunately, for the states of Ceará and Paraíba, we can cross-validate our measure using information on all contestants (not just the elected ones). For example, during the 1972 elections, the correlation coefficient between the presence of a *sublegenda* as measured by the winner versus all candidates was 0.83 for races won by ARENA and 0.65 for races won by MDB.

In Appendix Table A4, we provide some descriptive statistics on the elections that took place during the dictatorship for our sample. Column 1 shows the average number of elections per election year. On average, about 1,000 municipalities held elections each election year, which is approximately the number of municipalities in our sample. Column 2 shows that ARENA won 87% of the local elections. Column 3 indicates that 49% of elections adopted the *sublegenda* system. Columns 4 and 5 indicate that the share of elections with *sublegendas* conditional on ARENA and MDB victories were 51% and 33%, respectively. ARENA's frequent use of the *sublegenda* system is consistent with the military's desire to accommodate both new local candidates and traditional elites all under

[22]The sample is smaller due to the limited number of audits.

ARENA's party umbrella. Under this system, ARENA was able promote competition from non-traditional elite candidates while not alienating the traditional elites.

In Table 7, we test whether political concentration prior to the dictatorship is associated with the adoption of the *sublegenda* system. Our hypothesis is that the ARENA party was more likely to use *sublegendas* in the municipalities with higher levels of concentration. In these places, the traditional elites were more powerful and the use of the *sublegenda* would allow ARENA to facilitate entry of new contestants who would compete against traditional elites. In columns 1 to 3, we re-estimate Equation 1 using as a dependent variable an indicator for whether the winning mayor was running within a *sublegenda* in the election years 1972 or 1976. We focus on those elections because all municipalities held elections in those years. In column 1 of Table 7, we find that higher levels of political concentration are associated with greater use of a *sublegenda:* municipalities where a single family was in power pre-dictatorship have 19% higher likelihood of adopting the sublegenda voting system relative to municipalities where 3 families shared power during that period. Columns 2 and 3 suggest that this result is driven by the ARENA party. The effects for MDB party are small and insignificant.

In Appendix Table A5, we also provide suggestive evidence that the use of *sublegenda* was effective at increasing the vote share of ARENA. We regress the vote shares for the ARENA party during the 1972 and 1976 municipal elections on an indicator for whether different parties run a *sublegenda.* For these results we focus on the sample for which we have full information on the identity and party of all contestants.[23] We find that a party's use of *sublegenda* is strong correlated with vote shares. For example, during the 1976 elections, an ARENA *sublegenda* is associated with a 20 percentage point increase in vote shares for the ARENA party, even after controlling for vote share in the previous 1972 elections. In places where the MDB used a *sublegenda*, vote share for the ARENA party is associated with a 13 percentage point decline.

In Table A6, we provide additional evidence on the effect of political concentration on the identity of who contested the municipal elections. We focus on the ARENA party since we have tighter predictions for the military-backed party. We also focus on the 1976 election, but the results for the 1972 election are similar. Furthermore, we focus on the sample of municipalities for which we have information on all candidates. Panel A indicates that municipalities with higher political concentration were less likely to have only traditional elites contesting elections and more likely to have non-traditional elites contesting vis-a-vis traditional elites. As shown before, these regions

[23] Hence, we focus on the municipalities of Ceará and Paraíba. There are 340 municipalities in this sample. The main results of the paper similar when the sample is restricted to these municipalities, albeit less precisely estimated. The results are available upon request.

were more likely to have *sublegendas* in the ARENA party. Hence, this is consistent with *sublegendas* facilitating contestation between traditional and non-traditional elites. Panels B and C provide suggestive evidence that these results are driven by the higher likelihood of having *sublegendas.* In Panel B the sample is restricted to municipalities where ARENA adopted a *sublegenda.* The results are similar to those in Panel A, albeit stronger. In contrast, Panel C indicates that there are no significant effects on municipalities in which ARENA did not hold a *sublegenda*.

In sum, our results suggest that the *sublegenda* system was instrumental in reducing the hold on power of traditional elites and promoting political competition at the local level. Our results are consistent with historical accounts and resonates with the argument proposed by (Power, 1997):

> The institution that politicians chose of their own free will – the *sublegenda* – is one that decentralizes power, maximizes the freedom of the individual politicians, and permits the "cohabitation" of strange bedfellows.[...] The irony here is that reforms likely to strengthen parties and promote accountability under democracy were actually imposed by an authoritarian regime.

Agricultural Credit The military also wanted to modernize agriculture and transform Brazil into a major agro-business exporter. Their strategy was twofold: to rupture the ties between the state and the traditional elites whose inefficient farms had become reliant on preferential access to state resources and to make credit abundantly available to new economic elites who were more sympathetic to the military's political agenda (Houtzager, 1998). In line with this argument, we should expect to see an emergence of new economic elites and more credit targeted to places that were more politically concentrated prior to the dictatorship. We test this using data from the agricultural censuses. We first analyze the allocation of government credit to the agricultural sector. During the military dictatorship, there was a large expansion of credit: between years 1970 and 1980 the average loan per farm increased 22-fold in real terms.

In Table 8, we estimate whether this expansion of government credit was targeted to more politically concentrated municipalities. We focus on outcomes measured in 1980 and report results for outcomes measured in 1970 in Appendix Table A7. Column 1 indicates that municipalities where a single family was in power pre-dictatorship received 43% more government credit in 1980 relative to municipalities where 3 families shared power during that period. In column 2, we do not see a similar effect for private credit, suggesting that the demand for credit was not necessarily higher in more politically concentrated municipalities.

Next, we examine if the influx in credit was associated with the emergence of new agricultural

enterprises. Because these municipalities are predominately rural, we use the number of farms in the municipality as a proxy for economic competition. In column 3, we see that municipalities where a single family was in power pre-dictatorship have 42% more farms in 1980 relative to municipalities where 3 families shared power during that period. One might be concerned that this result reflects the introduction of small landholders, who are unlikely to compete with the traditional elites. But as column 4 indicates, average farm size is not decreasing over the period suggesting that the increase in the number of farms represents the cultivation of new lands.

4.4 Alternative Mechanism: Agricultural Modernization

Overall, our results suggest that the political and economic policies of the military increased political competition in municipalities that were more politically concentrated prior to the dictatorship and that this increase in competition led to more economic development. An alternative interpretation, however, is that the military's attempt to modernize agriculture had a direct effect on the long-run development of these places, independent of its impact on the political process.

To test this, we use data from the agricultural censuses to measure usage of fertilizers, tractors, and electricity, which were important indicators of modernization during this period. Columns 1 to 3 of Table 9 report the correlation between political concentration pre-dictatorship and usage of various agricultural inputs measured in 1980.[24] We find no effects on the main measures of agricultural mechanization: tractors per farm and availability of electricity. There is a small increase in the share of farms that use fertilizer, but the effect size is small: a one standard deviation increase in political concentration is only associated with 3% increase in the share of farms that use fertilizer.

In columns 3 to 6, we investigate whether more politically concentrated municipalities experienced larger shifts in employment away from agriculture into other sectors, which would also be an indication of modernization in agriculture. The results indicate that political concentration is not associated with changes in the size of the agricultural or manufacturing sectors. There are some small increases in employment in the service and commerce sectors. However, the magnitude of the effects is modest and the relative size of these sectors is small (less than 8% of the economy both sectors combined). Hence, it is unlikely that these changes could account for the reversal in standards of living presented in Table 3.

To further explore agricultural modernization as a mechanism, we re-estimate the effects of political concentration on income per capita in 2000, controlling for changes in agricultural inputs and

[24] See Appendix Table A8 for similar results when measuring inputs in 1970.

sector composition. In doing so, we are including *bad controls*—i.e. covariates that are potentially endogenous to our main regressor of interest—, but we should expect our estimates on political concentration to be underestimates given the positive correlation we documented in Table 9. We present the results of this robustness check in Table 10. Column 1 reproduces our baseline result for the sample for which we have measures of agricultural modernization. In column 2 we incorporate as controls the changes in agricultural inputs between 1960 and 1980. In column 3 we add as controls changes in sectoral employment between 1970 and 1980. Our main estimate remains large and statistically significant even when including these demanding controls. This suggests that agricultural modernization does not seem to be a quantitatively-relevant alternative mechanism for our main results.

5 Conclusions

We study how changes in the concentration of political power affect long-run economic and political development. To identify these effects, we analyze the impacts of Brazil's military dictatorship on the distribution of power of local traditional elites. We show that the municipalities that were more politically concentrated before the dictatorship exhibited better development outcomes in the long run, despite being poorer initially. This "reversal of fortune", we argue, was the result of an increase in local political competition that occurred when the military sought to reorganize a political system they viewed as a threat to political stability. Their reforms centralized authority out of the hands of the traditional oligarchs, and as a consequence, ushered in a new class of political actors. Even though these reforms were introduced at a national scale, their implementation was targeted towards municipalities where political power was concentrated in the hands of a few families.

Our results highlight how institutional transformations that emerge from large-scale regime transitions can disrupt the balance of power and change the political equilibrium even at local levels. In the case of Brazil, this political shock broke up local political monopolies and promoted entry of new contestants, which ultimately led to better governance and higher levels of long-run economic development. And while our empirical evidence is specific to Brazil, our finding that more political competition leads to better economic outcomes does provide general lessons applicable to other contexts.

It is important to note, however, that we do not interpret our results as suggesting that the effects of the dictatorship for Brazil as a whole were positive. Our regression estimates can only speak to the relative comparison between more versus less politically concentrated municipalities. We

do not have a counterfactual of municipalities ruled under full democracy. Also, like many other dictatorships in Latin America, there were several cases of corruption, killings and torture that generated significant negative consequences for the population.

Finally, a natural question that emerges is why did the new local politicians not entrench themselves? After all, as Michels (1911) argues in his seminal book, there is an "Iron law of oligarchy" where the new elites that emerge after institutional changes still face the same incentives to implement similar dysfunctional policies. The answer, we believe, lies in the coexistence between old and new elites at the local level. The military decided to keep local elections in an effort to maintain a democratic appearance. Thus, they could not entirely eliminate the traditional families from local power as they needed their support and clientelistic machines to win elections. In this setting the entry of a more diverse set of politicians resulted in an increase in political competition, rather than a replacement of one elite by another.

Our findings paint a more optimistic picture than the one depicted by Acemoglu and Robinson (2008), in which changes in political institutions are undone by the investment of elites in *de facto* political power. Hence, understanding in what contexts changes in institutions can affect political competition, reduce clientelism, and improve public service delivery remains an important agenda for future work.

References

Abrucio, F. L. (1998). *Os Barões da Federação: Os governadores e a redemocratização brasileira*. Hucitec, USP, São Paulo.

Acemoglu, D., Bautista, M. A., Querubin, P., and Robinson, J. (2008). Economic and Political Inequality in Development: The Case of Cundinamarca, Colombia. In Helpman, E., editor, *Institutions and Economic Performance*, chapter 05. Harvard University Press.

Acemoglu, D., Cantoni, D., Johnson, S., and Robinson, J. A. (2011). The Consequences of Radical Reform: The French Revolution. *American Economic Review*, 101(7):3286–3307.

Acemoglu, D., Johnson, S., and Robinson, J. (2005). Institutions as a fundamental cause of long-run growth. In Aghion, P. and Durlauf, S., editors, *Handbook of Economic Growth*, volume 1, Part A, chapter 06, pages 385–472. Elsevier, 1 edition.

Acemoglu, D., Reed, T., and Robinson, J. (2014). Chiefs: Economic development and elite control of civil society in sierra leone. *Journal of Political Economy*, 122(2):319 – 368.

Acemoglu, D. and Robinson, J. A. (2006a). Economic Backwardness in Political Perspective. *American Political Science Review*, 100(1):115–131.

Acemoglu, D. and Robinson, J. A. (2006b). *Economic Origins of Dictatorship and Democracy*. Number 9780521855266 in Cambridge Books. Cambridge University Press.

Acemoglu, D. and Robinson, J. A. (2008). Persistence of Power, Elites, and Institutions. *American Economic Review*, 98(1):267–293.

Acemoglu, D. and Robinson, J. A. (2012). *Why Nations Fail: The Origins of Power, Prosperity and Poverty*. Crown, New York, 1st edition.

Aidt, T. and Eterovic, D. (2011). Political competition, electoral participation and public finance in 20th century latin america. *European Journal of Political Economy*, 27(1):181–200.

Anderson, S., Francois, P., and Kotwal, A. (2015). Clientelism in indian villages. *American Economic Review*, 105(6):1780–1816.

Arvate, P. R. (2013). Electoral competition and local government responsiveness in brazil. *World Development*, 43:67 – 83.

Avis, E., Ferraz, C., and Finan, F. (2018). Do government audits reduce corruption? estimating the impacts of exposing corrupt politicians. *Journal of Political Economy*, 126(5):1912–1964.

Baiocchi, G. (2006). *Decentralization as Opportunity Structure: Inequality and Innovation in Brazil*, pages 53–80. MIT Press.

Baland, J.-M. and Robinson, J. A. (2008). Land and Power: Theory and Evidence from Chile. *American Economic Review*, 98(5):1737–1765.

Banerjee, A. and Iyer, L. (2005). History Institutions and Economic Performance: The Legacy of Colonial Land Tenure Systems in India. *American Economic Review*, 95(5):1190–1213.

Becker, G. (1983). A theory of competition among pressure groups for political influence. *The Quarterly Journal of Economics*, 98(3):371–400.

Becker, G. S. (1958). Competition and democracy. *The Journal of Law and Economics*, 1:105–109.

Besley, T. and Case, A. (2003). Political Institutions and Policy Choices: Evidence from the United States. *Journal of Economic Literature*, 41(1):7–73.

Besley, T., Persson, T., and Sturm, D. M. (2010). Political Competition, Policy and Growth: Theory and Evidence from the US. *Review of Economic Studies*, 77(4):1329–1352.

Besley, T. and Reynal-Querol, M. (2017). The logic of hereditary rule: theory and evidence. *Journal of Economic Growth*, 22(2):123–144.

Carson, J. L., Engstrom, E. J., and Robesrts, J. M. (2007). Candidate quality, the personal vote, and the incumbency advantage in congress. *American Political Science Review*, 101(2):289–301.

Dal Bó, E., Dal Bó, P., and Snyder, J. (2009). Political dynasties. *Review of Economic Studies*, 76(1):115–142.

de Carvalho, J. M. (1982). Political Elites and State Building: The Case of Nineteenth-Century Brazil. *Comparative Studies in Society and History*, 24(3):378–399.

de Souza Carreirao, Y. (1988). Eleições e sistema partidário em Santa Catarina (1945-79). Master's thesis, Ciencias Sociais, UFSC, Florianopolis, SC.

Dell, M. (2010). The Persistent Effects of Peru's Mining Mita. *Econometrica*, 78(6):1863–1903.

Dittmar, J. E. and Meisenzahl, R. R. (2020). Public Goods Institutions, Human Capital, and Growth: Evidence from German History. *Review of Economic Studies*, 87(2):959–996.

Fausto, B. (1989). Society and politics. In Bethell, L., editor, *Brazil: Empire and Republic, 1822–1930*, chapter 6, pages 217–256. Cambridge University Press, Cambridge, UK.

Galasso, V. and Nannicini, T. (2011). Competing on good politicians. *American Political Science Review*, 105(1):79–99.

George, S. E. (2020). Like Father, Like Son? The Economic Effects of Political Dynasties.

Geys, B. (2017). Political Dynasties, Electoral Institutions and Politicians' Human Capital. *Economic Journal*, 127(605):474–494.

Graham, D. H., Gauthier, H., and de Barros, J. R. M. (1987). Thirty years of agricultural growth in brazil: Crop performance, regional profile, and recent policy review. *Economic Development and Cultural Change*, 36(1):1–34.

Griffin, J. D. (2006). Electoral competition and democratic responsiveness: A defense of the marginality hypothesis. *Journal of Politics*, 68(4):911–921.

Hagopian, F. (1996). *Traditional Politics and Regime Change in Brazil*. Cambridge University Press, New York and Cambridge.

Houtzager, P. P. (1998). State and unions in the tranformation of the brazilian countryside 1964-1979. *Latin American Research Review*, 33(2).

Jenks, M. S. (1979). *Political Parties in Authoritarian Brazil*. PhD thesis, Duke University.

Leal, V. N. (1977). *Coronelismo: The Municipality and Representative Government in Brazil*. Cambridge University Press, Cambridge, UK.

Lewin, L. (2014). *Politics and Parentela in Paraiba: A Case Study of Family-Based Oligarchy in Brazil*. Princeton University Press, Princeton, NJ.

Lizzeri, A. and Persico, N. (2004). Why did the elites extend the suffrage? democracy and the scope of government, with an application to britain's "age of reform". *The Quarterly Journal of Economics*, 119(2):707–765.

Machado Madeira, R. (2006). *Vinhos antigos em novas garrafas: a influência de ex-arenistas e ex-emedebistas no atual multipartidarismo brasileiro*. PhD thesis, Universidade Federal do Rio Grande do Sul.

Mainwaring, S. (1986). The transition to democracy in brazil. *Journal of Interamerican Studies and World Affairs*, 28(1):149–179.

Mainwaring, S. P. (1999). *Rethinking Party Systems in the Third Wave of Democratization: the Case of Brazil*. Stanford University Press, Stanford, California.

Martinez-Bravo, M., Mukherjee, P., and Stegmann, A. (2017). The Non-Democratic Roots of Elite Capture: Evidence From Soeharto Mayors in Indonesia. *Econometrica*, 85(6):1991–2010.

Michels, R. (1911). *Political Parties*. The Free Press, New York.

Naritomi, J., Soares, R. R., and Assunção, J. J. (2012). Institutional Development and Colonial Heritage within Brazil. *The Journal of Economic History*, 72(2):393–422.

North, D. and Weingast, B. (1989). Constitutions and commitment: The evolution of institutions governing public choice in seventeenth-century england. *The Journal of Economic History*, 49(4):803–832.

Nunn, N. (2008). The Long-term Effects of Africa's Slave Trades. *The Quarterly Journal of Economics*, 123(1):139–176.

O'Donnell, G. (1979). Tensions in the bureaucratic-authoritarian state and the question of democracy. In Collier, D., editor, *The New Authoritarianism in Latin America*, Princeton, NJ. Princeton University Press.

Powell, G. (2000). *Elections As Instruments of Democracy: Majoritarian and Proportional Visions*. Yale University Press, New Haven, CT.

Power, T. J. (1997). Parties, puppets and paradoxes: Changing attitudes toward party institutionalization in post-authoritarian brazil. *Party Politics*, 3(2):189–219.

Power, T. J. (2000). *The Political Right in Postauthoritarian Brazil: Elites, Institutions, and Democratization*. The Pennsylvania State University Press.

Przeworski, A. and Limongi, F. (1993). Political Regimes and Economic Growth. *Journal of Economic Perspectives*, 7(3):51–69.

Querubin, P. (2016). Family and Politics: Dynastic Persistence in the Philippines. *Quarterly Journal of Political Science*, 11(2):151–181.

Roett, R. (1999). *Brazil: Politics in a Patrimonial Society*. Praeger Publishers, Westport, CT.

Samuels, D. and Abrucio, F. L. (2000). Federalism and democratic transitions: The "new" politics of the governors in brazil. *Publius*, pages 43–61.

Sarles, M. J. (1982). Maintaining political control through parties: The brazilian strategy. *Comparative Politics*, 15(1):41–72.

Schmitter, P. C. (1973). The "portugalization" of brazi? In Stepan, A., editor, *Authoritarian Brazil: Origins, Policies, and Future*, New Haven, CT. Yale University Press.

Skidmore, T. E. (1988). *The Politics of Military Rule in Brazil, 1964-1985*. Oxford University Press, Oxford.

Soares, G. A. D. (1979). Military authoritarianism and executive absolutism in Brazil. *Studies in Comparative International Development*, 14(1).

Soares, G. A. D. (1982). The Brazilian political system: New parties and old cleavages. *Luso-Brazilian Review*, 19(1).

Sokoloff, K. L. and Engerman, S. L. (2000). Institutions, Factor Endowments, and Paths of Development in the New World. *Journal of Economic Perspectives*, 14(3):217–232.

Stepan, A. (1973). *Authoritarian Brazil: Origins, Policies, and Future*. Yale Univeristy Press, New Haven, CT.

Stigler, G. (1972). Economic competition and political competition. *Public Choice*, 13(1):91–106.

Weyland, K. (2005). *The Growing Sustainability of Brazil's Low-Quality Democracy*, page 90–120. Cambridge University Press.

Willis, E., da C.B. Garman, C., and Haggard, S. (1999). Latin american research review. *American Economic Review*, 34(1):7–56.

Wittman, D. (1989). Why democracies produce efficient results. *Journal of Political Economy*, 97(6):1395–1424.

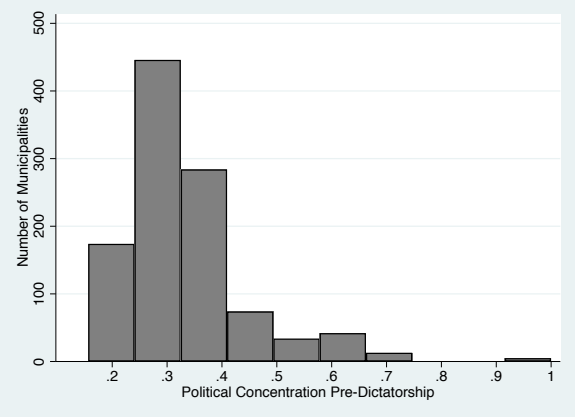
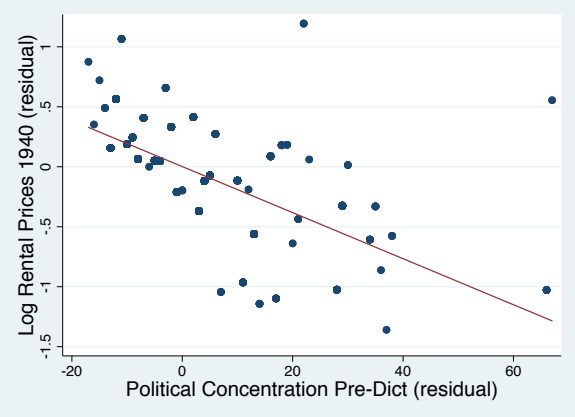
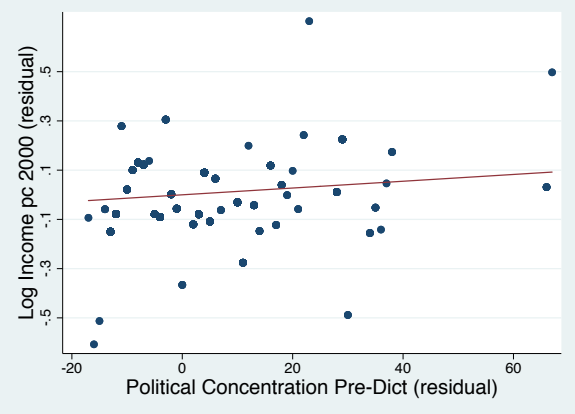


Figure 1: Distribution of Pre-Dictatorship Political Concentration across Municipalities

Notes: This figure shows the histogram of municipalities by their level of political concentration pre-dictatorship, which is measured by the Herfindahl index based on the share of terms governed by the same political family.



Income Proxy in 1940 and Pre-Dictatorship Political Concentration



Income per capita in 2000 and Pre-Dictatorship Political Concentration

Figure 2: Reversal in the Relationship between Political Concentration and Development

Notes: The first figure shows a binned scatter residual plot between log rental prices in 1940 and levels of political concentration pre-dictatorship. The residuals are obtained after regressing each variable on distance to the state capital. The second figure shows a similar residual plot, but showing log income per capita in 2000 in the y-axis.

Table 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
A. Measures of Political Power:					
Political concentration pre-dictatorship	1,072	0.325	0.118	0.156	1
Average family reelection rate pre-dictatorship	1,072	0.089	0.143	0	0.750
Average family reelection rate during dictatorship	1,072	0.082	0.161	0	1
Average family reelection rate post-dictatorship	1,072	0.091	0.212	0	1
At least one family transitions pre-dict to dictatorship	1,072	0.731	0.443	0	1
At least one family transitions pre-dict to democracy	1,072	0.439	0.497	0	1
B. Socieconomic Outcomes:					
Income per capita (R$ monthly) 2000	1,072	150.367	78.261	42.162	557.435
Years of Schooling 2000	1,072	3.789	1.139	1.283	8.134
Literacy Rate 2000	1,072	0.776	0.112	0.452	0.948
Infant Mortality 2000	930	33.738	46.043	1.812	1000
Number of Corrupt Irregularities	172	4.219	0.480	3.135	5.666
Herfindahl Index Mayoral Election 2000	1,072	0.495	0.115	0.206	1
Herfindahl Index Councilor Election 2000	1,072	0.037	0.017	0.005	0.123
Number of Farms 1970	1,072	992.192	977.112	22	6085
Average Size of Farms 1970	1,072	100.812	148.009	1.743	1966
Log Government Credit Per Farm 1970	1,063	0.479	0.428	0	2.878
Number of Tractors per farm 1970	1,072	0.015	0.033	0	0.378
Share of farms with access to electricty 1970	1,072	0.059	0.082	0	0.699
Share of farms that use fertilizer 1970	1,072	0.251	0.271	0	0.995
C. Covariates:					
Log rental prices 1940	1,072	9.01	1.34	5.53	14.60
Latitude	1,072	-15.00	6.79	-22.85	-2.89
Longitude	1,072	42.06	3.55	34.81	50.69
Distance to state capital (km/1000)	1,072	0.24	0.13	0	0.71
Population 1940	1,072	30,625	19,495	3,444	211,377
Share of Employment in Agriculture 1940	1,072	0.39	0.08	0.02	0.66
Illiteracy Rate 1940	1,072	0.72	0.11	0.23	0.94
Share of Blacks 1940	1,072	0.19	0.09	0.04	0.59
Share of Protestants 1940	1,072	0.01	0.02	0	0.15
Share of foreigners 1940	1,072	0.00	0.01	0	0.04
Sugar production per farm 1940	1,072	0.07	0.15	0	1.59
Cotton production per farm 1940	1,064	2.04	3.77	0	34.46
UDN in power pre-dictatorship	1,067	0.38	0.49	0	1
PTB in power pre-dictatorship	1,067	0.13	0.34	0	1

Notes: This table shows descriptive statistics for our sample of municipalities. The unit of observation is the municipality.

Table 2: Correlates of Pre-Dictatorship Political Concentration

	Dep Var: Political Concentration Prior to Dictatorship			
	Coefficient	Std. Error	Beta Coef.	P-value
	(1)	(2)	(3)	(4)
Geographic Covariates:				
Latitude	-0.004	(0.003)	-0.250	0.054
Longitude	0.000	(0.003)	0.000	0.999
Distance to state capital (km/1000)	-0.031	(0.034)	-0.035	0.266
Minas Gerais indicator	0.019	(0.010)	0.078	0.006
Ceara indicator	0.000	(0.010)	0.001	0.976
Demographic & Economic Covariates (1940):				
Log population	-0.033	(0.007)	-0.161	0.000
Illiteracy Rate	0.017	(0.038)	0.017	0.587
Share of Blacks	0.012	(0.045)	0.009	0.744
Share of Protestants	-0.163	(0.249)	-0.022	0.421
Share of foreigners	-0.534	(0.760)	-0.025	0.443
Share of agricultural employment	0.133	(0.048)	0.093	0.001
Log rental prices	-0.016	(0.003)	-0.178	0.000
Additional Covariates:				
Sugar production per farm in 1940	0.037	(0.022)	0.047	0.017
Cotton production per farm in 1940	0.003	(0.001)	0.080	0.024
Land Gini in 1940†	-0.009	(0.054)	-0.007	0.841
UDN in power pre-dictatorship	-0.015	(0.008)	-0.063	0.039
PTB in power pre-dictatorship	0.018	(0.011)	0.053	0.069

Notes: Each row reports the OLS estimate of regressing pre-dictatorship political concentration on the variable indicated in each row separately, while also controlling for state fixed effects. The unit of observation is the municipality. There are 1,072 observations included in each regression, except for land gini in 1940, which is only available for 882 municipalities (noted by †). Column 1 shows the point estimate for the regressor of interest. Column 2 shows the corresponding standard error. Column 3 corresponds to the standardized-beta and column 4 to the corresponding p-value. Standard errors are clustered at the municipalities in existence in 1940. *** p<0.01, ** p<0.05, *p<0.1.

Table 3: Political Concentration and Long-Run Development

	Contemporaneous Relationships			Reversal Results	
	Log Rental Prices 1940	Share of Workers Non-Agric. 1940	Log Income pc 2000	Log Income pc 2000	Log Income pc 2000
	(1)	(2)	(3)	(4)	(5)
Political Concentration:					
Pre-dictatorship	-0.637***	-0.046**		0.117*	0.182***
	(0.220)	(0.018)		(0.070)	(0.067)
Post-dictatorship			-0.257***		
			(0.057)		
Number of observations	1072	1072	1072	1072	1072
R^2	0.69	0.40	0.73	0.72	0.74
Mean of Dep. Var	9.013	.614	4.868	4.868	4.868
Geographic Controls	✓	✓	✓	✓	✓
Demographic Controls 1940	✓	✓	✓	✓	✓
State FE	✓	✓	✓	✓	✓
Socio-Economic Char. 1940					✓

Notes: The unit of observation is the municipality. Each column corresponds to a separate regression where dependent variable is displayed in the column heading. All specifications include the following controls: geographic controls (longitude, latitude and distance to the state capital); demographic controls in 1940 (log population, share of protestants, share of black population, and share of foreigners); and state fixed effects. Column 5 additionally controls for socio-economic characteristics in 1940 (share of non-agricultural population and a quartic on log rental prices). Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 688 clusters. *** p<0.01, ** p<0.05, *p<0.1.

Table 4: Political Concentration and Long-Run Development: Robustness

	Log Income per Capita 2000				
	(1)	(2)	(3)	(4)	(5)
Political Concentration:					
Pre-dictatorship	0.185***	0.176***	0.170**	0.188***	0.228***
	(0.067)	(0.066)	(0.067)	(0.066)	(0.070)
Number of observations	1059	1059	1059	1059	848
R^2	0.74	0.75	0.74	0.74	0.71
Mean of Dep. Var	4.872	4.872	4.872	4.872	4.988
Baseline controls	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓
Soil Quality		✓			
Agriculture Production			✓		
Political Controls				✓	
Land Gini					✓

Notes: The unit of observation is the municipality. The dependent variable is log income per capita in 2000. All the specifications include baseline controls, which are those included in specification in Table 3, column 5. Each specification adds additional controls as indicated in the table. Soil quality is measured by the percentage area in a municipality with regular and good soil types. Agricultural Production corresponds to the amount of sugar and cotton produced per farm in 1940. Political Controls correspond to indicators for whether the party of the last mayor before the dictatorship was a member of UDN or PTB (the omitted category corresponds to PSD). Land Gini corresponds to the gini coefficient of land allocation in 1940. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 681 clusters in columns 1 to 4 and 608 clusters in column 5. *** p<0.01, ** p<0.05, *p<0.1.

Table 5: Effects on Political Competition and Share of Non-Traditional Families

	Political Concentration of Families		Average Family-Level Reelection Rate			Herfindahl Index of Candidate Concentration		Share of Non-Traditional Families	
	Dict	Post-Dict	Pre-Dict	Dict	Post-Dict	Mayor 2000	Councilor 2000	Dict	Post-Dict
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Political Concentration:									
Pre-dictatorship	0.088***	0.047	0.825***	0.147***	0.073	-0.059**	-0.015***	-0.049	0.084
	(0.033)	(0.040)	(0.046)	(0.046)	(0.061)	(0.026)	(0.004)	(0.065)	(0.070)
Number of observations	1072	1072	1072	1072	1072	1072	1072	1072	1072
R^2	0.098	0.118	0.473	0.057	0.067	0.069	0.298	0.089	0.093
Mean of Dep. Var.	0.339	0.43	0.089	0.082	0.091	0.495	0.037	0.709	0.807
Baseline controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The unit of observation is the municipality. The dependent variable in columns 1 and 2 corresponds to the Herfindahl index of political concentration of families for the dictatorship and post-dictatorship period, respectively. The dependent variable in columns 3, 4 and 5 corresponds to the average reelection rate of incumbent families for the pre-dictatorship, dictatorship, and post-dictatorship period, respectively. The dependent variable in columns 6 and 7 corresponds to the Herfindahl index of concentration computed using the vote shares of different parties in the 2000 election for mayor and local council, respectively. The dependent variables in columns 8 to 9 correspond to the share of non-traditional families as described in the column headings. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 688 clusters. *** p<0.01, ** p<0.05, *p<0.1.

Table 6: Effects on Local Governance

	Literacy Rate 2000 (1)	Infant Mortality 2000 (2)	Num. Corrupt Irregularities (3)
Political Concentration:			
Pre-dictatorship	0.028**	-17.479**	-0.381**
	(0.012)	(7.721)	(0.191)
Number of observations	1072	930	172
R^2	0.829	0.023	0.621
Mean of Dep. Var.	0.776	33.738	4.219
Baseline controls	✓	✓	✓
State Intercepts	✓	✓	✓

Notes: The unit of observation is the municipality. The dependent variables in columns 1 to 3 correspond to different measures of quality of governance described in the column headings. The number of observations vary because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in specification in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 688 clusters in column 1. There are 647 clusters in column 2 and 155 in column 3. *** p<0.01, ** p<0.05, *p<0.1.

Table 7: Effects on the Adoption of *Sublegenda* Voting System

	During Dictatorship		
	Any Sublegenda (1)	ARENA Sublegenda (2)	MDB Sublegenda (3)
Political Concentration:			
Pre-dictatorship	0.215*	0.263**	0.087
	(0.121)	(0.128)	(0.082)
Number of observations	1045	1045	1045
R^2	0.036	0.038	0.076
Mean of Dep. Var.	0.734	0.676	0.107
Baseline controls	✓	✓	✓
State Intercepts	✓	✓	✓

Notes: The unit of observation is the municipality. The dependent variables are indicators for whether municipalities adopted the sublegenda system in the 1972 or 1976 elections. The dependent variable in column 1 takes value 1 if a sublegenda was adopted, regardless of the party that adopted it. The dependent variable in column 2 (3) takes value 1 if the ARENA (MDB) party adopted a sublegenda in the 1972 or 1976 election. The number of observations vary because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in specification in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 667 clusters. *** p<0.01, ** p<0.05, *p<0.1.

Table 8: Effects on Agricultural Credit and Entry of Agricultural Businesses in 1980

	Log Credit per Farm		Number of Farms	Average Farm Size
	Govt	Non-Govt		
	(1)	(2)	(3)	(4)
Political Concentration:				
Pre-dictatorship	0.666***	0.464	664.111***	-41.183
	(0.232)	(0.314)	(227.583)	(35.607)
Number of observations	1056	1056	1072	1071
R^2	0.311	0.230	0.329	0.261
Mean of Dep. Var.	3.629	1.317	1023.949	102.116
Baseline controls	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓

Notes: The unit of observation is the municipality. The dependent variables are obtained from the 1980 agricultural census and are described by the column headings. The number of observations vary because of missing information in the dependent variables. All specifications include baseline controls, which are those included in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 680 clusters in columns 1 and 2, and 688 clusters in columns 3 and 4. *** p<0.01, ** p<0.05, *p<0.1.

Table 9: Effects on Agricultural Modernization in 1980

	Agricultural Inputs			Sector of Employment			
	Tractors	Electricity	Fertilizer	Agriculture	Manufacturing	Services	Commerce
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Political Concentration:							
Pre-dictatorship	0.022	0.018	0.115***	-0.043	0.003	0.016*	0.024**
	(0.015)	(0.025)	(0.043)	(0.042)	(0.029)	(0.008)	(0.011)
Number of observations	1071	1071	1071	957	957	957	957
R^2	0.486	0.431	0.813	0.346	0.295	0.320	0.265
Mean of Dep. Var.	0.057	0.110	0.444	0.870	0.065	0.023	0.042
Baseline controls	✓	✓	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓	✓	✓

Notes: The unit of observation is the municipality. The dependent variables are obtained from the 1980 agricultural census and are described by the column headings. The number of observations vary because of missing information in the dependent variables. All specifications include baseline controls, which are those included in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 688 clusters in columns 1 to 3; and 655 clusters in columns 4 to 7. *** p<0.01, ** p<0.05, *p<0.1.

Table 10: Robustness to Controlling for Agricultural Modernization

	Log Income Per Capita 2000		
	(1)	(2)	(3)
Political Concentration:			
Pre-dictatorship	0.175***	0.147**	0.163**
	(0.068)	(0.066)	(0.066)
Modernization Variables:			
Δ Fertilizer 1980-1960		0.099*	
		(0.052)	
Δ Tractors 1980-1960		0.782***	
		(0.183)	
Δ Electricity 1980-1960		0.515***	
		(0.109)	
Δ Agriculture 1980-1970			-1.159***
			(0.148)
Δ Commerce 1980-1970			0.437
			(0.617)
Δ Services 1980-1970			1.293*
			(0.740)
Number of observations	946	946	946
R^2	0.730	0.754	0.765
Mean of Dep. Var.	4.923	4.923	4.923
Baseline controls	✓	✓	✓
State Intercepts	✓	✓	✓

Notes: The unit of observation is the municipality. The dependent variable is log income per capita in 2000. The number of observations vary because of missing information in some of the controls for agricultural modernization. All the specifications include baseline controls, which are those included in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 659 clusters. *** p<0.01, ** p<0.05, *p<0.1.

6 Online Appendix *[For Online Publication Only]*

6.1 Additional Data Description

This section provides further information on the different data sources used in this paper. We merged the different sources using municipality names or official identifiers. We use Brazil's Statistical Office (IBGE) historical files to trace municipal splits and merges, which were frequent during our study period. This allows us to have information on the municipal borders at the beginning of our sample period, i.e., 1940, which is the level we use to cluster the standard errors.

Political concentration and electoral outcomes. We collected data on the identity of all the mayors that held office from 1947 to 2000 in the states of Ceará, Minas Gerais, and Paraíba. We selected these states because they were the only ones that had information available. We downloaded the data from the state-level *Tribunal Regional Eleitoral*. For Ceará, we obtained historical information from http://www.tre-ce.jus.br/eleicao/resultados. For Minas Gerais the information was available from http://www.tre-mg.jus.br/eleicoes/eleicoes-anteriores-1. For Paraíba we obtained historical information from http://www.tre-pb.jus.br/eleicoes/eleicoes-anteriores/resultados-de-eleicoes. These data also reported the party affiliation of the winner. We use this information to construct our measure of the adoption of *sublegendas*. When candidates run under a *sublegenda* the party affiliation appears with a numerical subindex (i.e., "1", "2", or "3"), which indicates that there were multiple contestants within that party. For the states of Ceará and Paraíba, the electoral results during the dictatorship also included the names and party affiliations of all contestants. With this information we could create a more precise measure of whether parties adopted *sublegenda* and the type of contestants in each party. Furthermore, for a subset of these municipalities we also have the vote shares obtained for each candidate. To control for the political party that was in power before the dictatorship, we use indicators for whether UDN, PSD, or PTB were in power in a given municipality. We combine the existing state-level *Tribunal Regional Eleitoral* data with the publication TSE- Dados Estatísticos, Eleições Federal, Estadual e Municipal, Departamento de Imprensa Nacional, Rio de Janeiro, available for multiple years. They have been digitized and are available at http://bibliotecadigital.tse.jus.br/. Electoral data used to calculate the Herfindahl Index for Mayoral and Councilor elections in 2000 was obtained from the Tribunal Superior Eleitoral (TSE) at http://www.tse.jus.br/eleicoes/eleicoes-anteriores/eleicoes-2000.

Agricultural and population census. We digitized a number of agricultural, industrial, and population censuses between 1940 and 2000. Data from population census between 1970 to 2000 are available from Brazil's Statistical Office (IBGE) https://www.ibge.gov.br/estatisticas. Previous agricultural and population censuses have been digitized and are available in pdf format at https://biblioteca.ibge.gov.br/. Our main outcome of interest (log of income in 2000) comes from the 2000 population census. We also obtain other long-run outcomes from the 2000 population census, such as years of schooling, literacy and infant mortality rates. As key covariates we use a number of measures from the 1940 agricultural census, such as population size, employment rate, share of workers in the agricultural sector, average production of firms, and distribution of farm sizes, from which we construct measures of Land Gini. To check the effects on government credit and agricultural modernization we use agricultural census data from 1960, 1970, and 1980.

Data on Corruption. Our corruption measures are obtained from audit data from Brazil's federal audit program implemented by the Office of Comptroller-General (CGU). The program, named *Programa de Fiscalização por Sorteios Públicos* (Monitoring Program with Public Lotteries), consists of random audits of municipal governments for their use of federal funds. The lotteries are held publicly in conjunction with the national lottery, and all municipalities with a population of up to 500,000 inhabitants are eligible for selection. Starting with the 20th lottery in March 2006, the CGU began to code the information used for the reports. For each inspection order, the dataset contains information on the sector and government program, the amount transferred to the municipality, and a list of findings. For each finding, the auditors describe the irregularity found and classify it as: 1) an act of mismanagement (e.g. documents were not properly filled out, or improper storage of food supplies and medical equipment), 2) act of moderate corruption, 3) act of severe corruption. Based on this information, we construct measures of corruption at the municipality. Our measure of corruption is the number of irregularities classified as either moderate or severe based on audits that were conducted over 2005-2010. See Avis et al. (2018) for a more detailed description of these data.

Soil Quality. We use information from Brazil's Statistical Office (IBGE) that classify soil types in 9 categories according to suitability. Data available at https://www.ibge.gov.br/geociencias. We created the variable "share of area in a municipality with regular and good soil types" by adding up the share of areas in categories regular, regular to good, good to regular and good soil type.

6.2 Robustness Check for Common Surnames

Our main measure of political concentration is constructed under the assumption that two mayors that have the same surname are members of the same family. Given the history of the municipalities in our sample, this seems a valid assumption. Most mayors have quite uncommon surnames, which is indicative of an elite status. Nevertheless, occasionally some mayors have surnames that are common in Brazil. To verify the robustness of our measure of political concentration, we reconstructed family identifiers ignoring common surnames. More specifically, we assigned mayors different family identifiers if they only share a common surname, such as Silva. The most common surnames in Brazil are Silva, Santos, Sousa, and Oliveira, which have population shares of 11%, 7%, 6%, and 3% respectively.[25] We coded three alternative family identifiers: i. ignoring the surname Silva; ii. ignoring the surnames Silva and Santos; and iii. ignoring the surnames Silva, Santos, Sousa, and Oliveira. Note that in the latter case, none of the remaining surnames used to construct the family identifier has a population share larger than 3%. Using each alternative family identifier we computed a new measure of political concentration pre-dictatorship.

First, we note that the pairwise correlations between our baseline measure of political concentration and the alternative ones are, 0.91; 0.90; and 0.85, for alternative family identifiers (i); (ii); and (iii), respectively. These correlation coefficients are large, suggesting that the measure of political concentration used in the paper is not subject to large measurement error due to common surnames.

Second, we verify that our main results are robust to using political concentration when ignoring common surnames. The results are presented in Appendix Table A9. Panel A reproduces the baseline results in the paper to facilitate the comparison. In Panel B we recompute political concentration ignoring the most common surname, i.e. Silva. In Panel C we ignore the two most common surnames, i.e. Silva, Santos. In Panel D we ignore the four most common surnames, i.e. Silva, Santos, Sousa, and Oliveira. As we can see our results are, to large extent, robust to these alternative ways of measuring family relationships of mayors.

[25] Source: https://en.wikipedia.org/wiki/List_of_most_common_surnames_in_South_America.

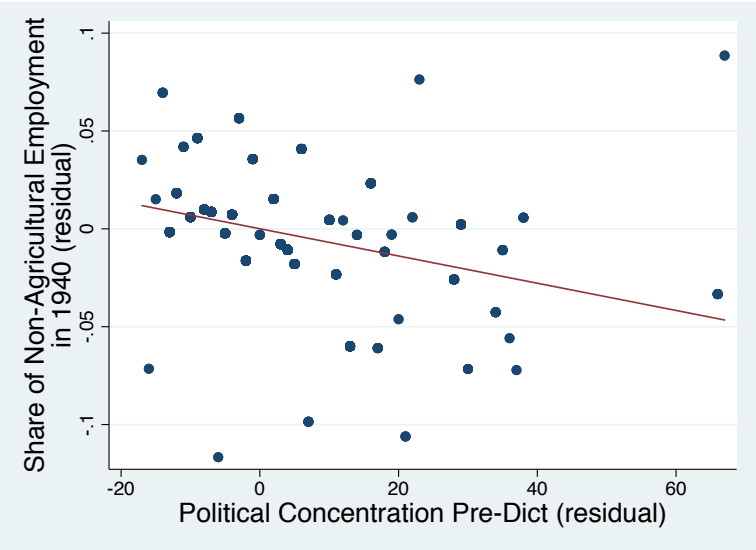


Figure 3: Reversal in the Relationship between Political Concentration and Development

Notes: This figure shows a binned scatter residual plot between share of non-agricultural employment in 1940 and levels of political concentration pre-dictatorship. The residuals are obtained after regressing each variable on distance to the state capital.

6.3 Appendix Figures

Table A1: Examples of Political Dynasties

Political Regime (1)	Election Year (2)	Name of Elected Mayor (3)	Family Identifier (4)	Party (5)
		Panel A. Municipality of Carandai (Minas Gerais)		
Pre-dict	1947	BENJAMIM PEREIRA BAETA	1	PSD
	1954	AGONCILO PEREIRA BAETA	1	PSD_PSP
	1958	ABELARD RODRIGUES PEREIRA FILHO	1	UDN
	1962	BENJAMIM PEREIRA BAHIA	1	PSD
Dictatorship	1966	PEDRO AMARAL	2	ARENA_1
	1970	BENJAMIM TEIXEIRA DE CARVALHO	3	ARENA_1
	1972	AGUINALDO PEREIRA BAETA	1	ARENA_1
	1976	BENJAMIN TEIXEIRA DE CARVALHO	3	ARENA_1
	1982	AGOSTINHO CORSINO DE OLIVEIRA	4	PMDB_1
Democracy	1988	WALDEMAR BERTOLIN	5	PDC
	1992	AGOSTINHO CORSINO DE OLIVEIRA	4	-
	1996	PAULO ROBERTO BARBOSA DINIZ	6	PMDB
	2000	MOACIR TOSTES DE OLIVEIRA	4	PPS
		Panel B. Municipality of Campos Sales (Ceara)		
Pre-dict	1947	HELIO LIMA	1	UDN
	1950	FRANCISCO VELOSO DE ANDRADE	2	UDN
	1954	HELIO LIMA	1	UDN
	1962	FRANCISCO VELOSO DE ANDRADE	2	UDN
Dictatorship	1966	FRANCISCO_JAIME DE ANDRADE	2	MDB
	1970	HELDER MACARIO DE BRITO	3	ARENA
	1972	JOSE IRIS DE MORAIS	4	ARENA
	1976	FRANCISCO DE PAULA FORTALEZA	5	ARENA1
	1982	JOSE IRIS DE MORAES	4	PDS-1
Democracy	1988	JOSE LOURENCO ARRAIS	6	PFL
	1992	FRANCISCO DE PAULA FORTALEZA	5	PDT
	1996	PAULO NEY MARTINS	7	PDT/PSDB
	2000	JOSE LOURENCO ARRAIS	6	PFL/PMDB

Notes: This table illustrates the structure of our data on mayors using as an example two municipalities: Carandai in Panel A and Campos Sales in Panel B. Each row shows the information of the elected mayor in the corresponding local election.

Table A2: Timing of Local Elections

Year (1)	Ceara (2)	Minas Gerais (3)	Paraiba (4)	Total (5)
1947	184	750	213	1,147
1949	0	91	0	91
1950	170	0	0	170
1951	0	0	221	221
1952	0	0	10	10
1953	0	0	10	10
1954	164	750	0	914
1955	0	0	217	217
1958	182	750	0	932
1959	0	0	213	213
1960	0	0	20	20
1962	184	746	58	988
1963	0	221	149	370
1964	0	6	30	36
1966	184	750	73	1,007
1968	0	0	156	156
1969	0	0	71	71
1970	184	738	0	922
1972	184	726	219	1,129
1976	183	751	219	1,153
1982	184	748	219	1,151
1984	1	0	3	4
1985	12	0	0	12
1988	184	752	216	1,152
1992	184	751	220	1,155
1996	184	750	221	1,155
2000	182	744	221	1,147
Total	2,550	10,024	2,979	15,553

Notes: This table shows the frequency of local elections held by calendar year in the three different states that are part of our sample. Column 4 shows the frequency of elections when adding up the three states.

Table A3: Correlates of Rental Prices in 1940

	Log Rental Prices 1940	
	(1)	(2)
Share of Employment not in Agriculture 1940	9.119***	
	(0.603)	
Literacy Rate 1940		5.259***
		(0.582)
Number of observations	1072	1072
R^2	0.41	0.28
Mean of Dep. Var	9.013	9.013
Mean of Indep. Var	.614	.284
State Intercepts	✓	✓

Notes: The unit of observation is the municipality. Each column corresponds to a separate regression where dependent variable is regressed on the regressor displayed and state fixed effects. The dependent is the log of rental prices in 1940. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 688 clusters. *** p<0.01, ** p<0.05, *p<0.1.

Table A4: Summary Statistics: Elections during the Military Dictatorship

	Number of Elections	Share of Elections won by ARENA	Share of Elections with Sublegendas	Share of Elections with Sublegendas conditional on ARENA victory	Share of Elections with Sublegendas conditional on MDB victory
	(1)	(2)	(3)	(4)	(5)
Average during the military dict.	999.69	0.87	0.49	0.51	0.33
By election year:					
1966	992	0.89	0.52	0.56	0.22
1968	154	0.64	0.36	0.41	0.25
1969	69	0.78	0.35	0.44	0.00
1970	909	0.90	0.38	0.40	0.23
1972	1120	0.87	0.45	0.46	0.38
1976	1132	0.86	0.61	0.63	0.47

Notes: This table shows a number of summary statistics regarding elections during the dictatorship period. The first row provides averages of each statistic across all election years. The subsequent rows report statistics by election year.

Table A5: Sublegenda and ARENA's Vote Share

	ARENA vote share 1972		ARENA vote share 1976		
	(1)	(2)	(3)	(4)	(5)
Sublegenda	0.119***		0.182***		
	(0.027)		(0.030)		
ARENA Sublegenda		0.198***		0.218***	0.200***
		(0.021)		(0.023)	(0.022)
MDB Sublegenda		-0.319***		-0.196***	-0.142***
		(0.033)		(0.026)	(0.026)
ARENA vote share in 1972					0.345***
					(0.059)
Number of observations	277	277	277	277	274
R^2	0.187	0.461	0.220	0.455	0.553
Mean of Dep. Var.	0.722	0.722	0.731	0.731	0.733
Baseline controls	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓

Notes: The unit of observation is the municipality. The sample is restricted to the municipalities in Ceará and Paraíba, for which we have information on vote shares of all contestants. The dependent variable in columns 1 and 2 is the vote share of the ARENA party in the 1972 election. The dependent variable in columns 1 and 2 is the vote share of the ARENA party in the 1976 election. This information was only available for 277 municipalities. All the specifications include baseline controls, which are those included in specification in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 183 clusters. *** p<0.01, ** p<0.05, *p<0.1.

Table A6: Effects on Type of Political Contestation

	Type of Contestants in ARENA party 1976 Election		
	Only traditional elites (1)	Only non-traditional elites (2)	Traditional and Non-traditional elites (3)
	Panel A. All Elections		
Political Concentration	-0.393**	-0.110	0.502*
Pre-dictatorship	[0.184]	[0.326]	[0.298]
Observations	340	340	340
R-squared	0.050	0.111	0.088
Mean	0.144	0.529	0.326
	Panel B. Elections with ARENA sublegenda		
Political Concentration	-0.560***	-0.122	0.682*
Pre-dictatorship	[0.196]	[0.379]	[0.370]
Observations	256	256	256
R-squared	0.124	0.170	0.099
Mean	0.129	0.465	0.406
	Panel C. Elections without ARENA sublegenda		
Political Concentration	0.186	-0.026	
Pre-dictatorship	[0.536]	[0.575]	
Observations	84	84	
R-squared	0.188	0.207	
Mean	0.190	0.726	

Notes: The unit of observation is the municipality. The sample is restricted to the municipalities in Ceará and Paraíba, for which we have information on all contestants. The dependent variables are indicators for type of political contestation in the ARENA party during the 1976 mayoral elections. In column 1 the dependent variable takes value 1 if only traditional elites contested, 0 otherwise. In column 2, the dependent variable takes value 1 if only non-traditional elites contested. In column 3, the dependent variable takes value 1 if there was contestation between traditional and non-traditional candidates. Panel A present the results for all municipalities. Panel B restrict the sample to municipalities that adopted the sublegenda system within the ARENA party. Panel C restrict the sample to municipalities that did not adopt the sublegenda system within the ARENA party. All the specifications include baseline controls, which are those included in specification in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 188 clusters in panel A, 159 in panel B, and 57 in panel C. *** p<0.01, ** p<0.05, *p<0.1.

Table A7: Effects on Agricultural Credit and Entry of Agricultural Businesses in 1970

	Log Credit per Farm		Number of Farms	Average Farm Size
	Govt	Non-Govt		
	(1)	(2)	(3)	(4)
Political Concentration:				
Pre-dictatorship	0.264***	-0.019	653.002***	-30.614
	(0.094)	(0.046)	(211.516)	(28.764)
Number of observations	1063	1063	1072	1072
R^2	0.366	0.172	0.319	0.292
Mean of Dep. Var.	0.479	0.125	992.192	100.812
Baseline controls	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓

Notes: The unit of observation is the municipality. The dependent variables are obtained from the 1970 agricultural census and are described by the column headings. The number of observations vary because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in specification in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 683 clusters in columns 1 and 2 and 688 clusters in columns 3 and 4. *** p<0.01, ** p<0.05, *p<0.1.

Table A8: Effects on Agricultural Modernization in 1970

	Agricultural Inputs			Sector of Employment			
	Tractors	Electricity	Fertilizer	Agriculture	Manufacturing	Services	Commerce
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Political Concentration:							
Pre-dictatorship	-0.004	0.005	0.093**	-0.043	0.019	0.011*	0.013
	(0.006)	(0.016)	(0.046)	(0.034)	(0.026)	(0.006)	(0.009)
Number of observations	1072	1072	1072	957	957	957	957
R^2	0.329	0.522	0.676	0.362	0.284	0.308	0.303
Mean of Dep. Var.	0.015	0.059	0.251	0.896	0.045	0.020	0.038
Baseline controls	✓	✓	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓	✓	✓

Notes: The unit of observation is the municipality. The dependent variables are obtained from the 1970 agricultural census and are described by the column headings. The number of observations vary because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in specification in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. There are 688 clusters in columns 1 to 3 and 655 in coluns 4 to 7. *** p<0.01, ** p<0.05, *p<0.1.

Table A9: Robustness Check for Common Surnames

	Dependent Variables:						
	Log Income per Capita 2000	Herfindahl Index Candidate Concentration Mayor (2000)	Literacy Rate 2000	Infant Mortality 2000	Number of Corrupt Irregularities	ARENA Sublegenda 2000	Log Gov Credit 1980
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Panel A. Baseline Results						
Pol Conc. Pre-dict.	0.182***	-0.059**	0.028**	-17.479**	-0.381**	0.263**	0.666***
	(0.067)	(0.026)	(0.012)	(7.721)	(0.191)	(0.128)	(0.232)
Obs	1,072	1,072	1,072	930	172	1,045	1,056
R-squared	0.744	0.069	0.829	0.023	0.621	0.038	0.311
	Panel B. Robustness to ignoring most common surname						
Pol Conc. Pre-dict.	0.171***	-0.055**	0.017	-14.703*	-0.404**	0.239*	0.912***
	(0.063)	(0.027)	(0.011)	(7.702)	(0.196)	(0.127)	(0.239)
Obs	1,072	1,072	1,072	930	172	1,045	1,056
R-squared	0.744	0.069	0.828	0.022	0.622	0.037	0.315
	Panel C. Robustness to ignoring 2 most common surname						
Pol Conc. Pre-dict.	0.173***	-0.059**	0.018	-14.637*	-0.432**	0.245*	0.901***
	(0.063)	(0.028)	(0.011)	(7.674)	(0.194)	(0.127)	(0.237)
Obs	1,072	1,072	1,072	930	172	1,045	1,056
R-squared	0.744	0.069	0.828	0.022	0.623	0.037	0.315
	Panel D. Robustness to ignoring surnames with higher than 3% population share						
Pol Conc. Pre-dict.	0.157**	-0.052*	0.023**	-15.377**	-0.533***	0.265**	0.858***
	(0.064)	(0.029)	(0.012)	(7.436)	(0.188)	(0.125)	(0.250)
Obs	1,072	1,072	1,072	930	172	1,045	1,056
R-squared	0.744	0.069	0.828	0.022	0.627	0.038	0.314

Notes: The unit of observation is the municipality. The dependent variables are the same as those described in previous tables. Panel A shows the baseline results for comparison. Panel B uses as main regressor a measure of political concentration coded such that mayors that share the most common surname (i.e. Silva) are not assumed to belong to the same political family. Panel C proceeds in a similar way ignoring surnames Silva and Santos. Panel D proceeds in a similar way ignoring surnames Silva, Santos, Sousa, and Oliveira. The number of observations vary because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in specification in Table 3, column 5. Standard errors clustered at the municipalities in existence in 1940 shown in parenthesis. See previous table notes for indications on the number of clusters. *** p<0.01, ** p<0.05, *p<0.1.