Political Power, Elite Control, and Long-Run Development: Evidence from Brazil*

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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 among traditional elites, leading to better governance, more public goods, and higher income levels.

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, 2006; Baland and Robinson, 2008; Anderson et al., 2015). Thus, shocks to the balance of political power can alter the political equilibrium and affect long-run economic development (Acemoglu et al., 2005). But whether this prediction holds 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 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 policymaking. They implemented a series of economic and political reforms designed to weaken the traditional elites, whom the military viewed as an obstacle towards building a strong national state necessary for economic development (Guillermo O'Donnell, 1979; Skidmore, 1988; Hagopian, 1996). These reforms changed the political landscape of local elections that the military continued to hold to legitimize their power. As a result, political competition increased at the local level both during and after the dictatorship.[4]

We exploit the dictatorship as a shock to the political power of traditional elites and present the first systematic large-scale evidence of how changes to political power affect long-run development.[5] 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.[6] Using the surname of these mayors, we identify who belonged to

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

[2] We adopt Acemoglu and Robinson (2006, 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] There was an earlier dictatorship in Brazil between 1937 and 1945 under Getúlio Vargas, but the reforms implemented had limited effects on the power of local oligarchies (Hagopian, 1996, p. 53)

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

[6] Unfortunately, historical data on the identity of mayors do not exist in a centralized archive and we could only

the same political dynasty and construct a measure of political concentration; a Herfindahl 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, more politically concentrated municipalities 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 relatively more politically concentrated municipalities before the dictatorship became relatively richer some 60 years later. This relationship is robust to including a number of additional controls that are likely to have affected long-run economic development, such as geographic characteristics, initial demographic differences, soil quality, agricultural production structure, initial political ideology differences, and land inequality.

What explains the reversal? We argue that the reversal reflects changes in the 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 the entry of new candidates in those regions. Even though nontraditional elites were not more likely to hold office in these regions, political competition nevertheless increased and persisted over time. This, in turn, translated into better governance, higher provision of local public goods, and consequently higher incomes.[7] 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 became 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

find this information spanning this period for the three states we have analyzed. Nevertheless, as described below, these states represent the power dynamics in the rest of the country.

[7] 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.

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 whom they could trust (Sarles, 1982; Power, 2000). But by promoting their candidates, they risked losing the elections by having the traditional elites, who were still politically powerful at the local level, join the opposition party. The military created a new balloting system called the *sublegenda* to avoid this possibility. This system allowed multiple candidates to compete under the same party: the candidate with the 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 while at the same time fostering competition among them (Soares, 1982). Although this policy was introduced nationwide, it was implemented unevenly across municipalities. An essential contribution of our study is that we provide empirical evidence on the implementation of this crucial 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 1960s, 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. Subsidized credit was a key policy to support the modernization and creation of new agricultural businesses. 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 before the 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 support an alternative interpretation of 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 the sectoral composition of employment, which are typically associated with the 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 sectoral composition. This suggests that our main empirical specification is not confounded by the (potential) direct effects of mechanization or credit on economic performance.

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 on party competition but rather on competition across political families. This is relevant because political parties are weakly institutionalized in many developing countries, 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. Unlike their work, however, we study how changes in a country's political regime can affect political competition and, thus, long-run development locally.[8]

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

[8]Our study also relates to 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, Monica and Priya Mukherjee and Andreas Stegmann (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 supported public goods across German cities in the 1500s.

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 higher in polities with hereditary leaders when executive constraints are weak. George and Ponattu (2020) use historical data on legislators in India to examine the effects of dynastic politics on selection and performance in office. He finds that descendants from previous politicians 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 before the dictatorship became increasingly more competitive locally. We further argue that the change in the distribution of political power resulted from 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 following subsection discusses how political power was distributed before the dictatorship. We then describe Brazil's transition to a 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 the welfare of its citizens.

Local politics prior to the dictatorship

The political system in Brazil's first democratic republic (1889-1930) was based on the interaction of local political brokers who controlled the rural population with state-level oligarchs who controlled access to state resources. At the local level, political power was exerted by large landowners who employed vast amounts of labor and acted as local political bosses. These "Colonels" ruled their patriarchal domains with an iron hand and manipulated elections with clientelism, fraud, and coercion.[9] As municipalities did not have financial autonomy, alignment with the state-level oligarchy guaranteed the control of resources. Local political bosses were responsible for delivering the votes and, in exchange, they obtained resources for schools, roads, electricity and access to public employment. These resources were then used through clientelism and patronage to guarantee political support.[10]

Getúlio Vargas, who ruled Brazil from 1930 to 1945, interrupted this political order. He aimed to replace the power of rural "colonels" with labor unions to shift political power away from rural elites. He changed the nature of the relationship between regional oligarchies and the central government by disrupting the state political machines (Hagopian, 1996). During his democratic government, he established the Electoral Judicial System to enlist voters, monitoring and regulating elections. He also introduced a new electoral code where voting was made secret, making it harder for "colonels" to manipulate elections. Later, between 1937 and 1945, Getúlio Vargas ruled as a dictator and abolished elections for governor and mayors, thus centralizing political power through the appointment of state and municipal chief executives.[11] Vargas reforms threatened the practice of traditional clientelism in the short-run, but they had limited effects in changing the power of local oligarchies (Hagopian, 1996, p. 53).

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 ballots 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 primarily 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 pol-

[9] See Skidmore (2007) and Fausto (1986).
[10] See Leal (1977) page 58; Hagopian (1996) and Fausto and de Holanda (2007).
[11] See Fausto and de Holanda (2007).

itics 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) writes, 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 could maintain large clientelistic networks with economic power and access to state resources. Although political parties existed, they lacked programmatic content or organizational significance. The following analysis will define political concentration at the family level instead of 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 largely responded to a set of redistributive and populist policies that the political elites felt would undermine their political and economic interests (Skidmore, 1988).[12] 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.[13] 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).[14]

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).

[12] João Goulart's rise 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 eight months after taking office. Most Brazilian elites considered Goulart a dangerous politician due to his strong ties to leftist movements. During his term in office, he tried to implement policies that were considered a threat to the economic interests of several groups, such as land reform or the enfranchisement of illiterate people.

[13] It is hard to know exactly why the elites were "caught off guard" by the military. But part of the reason has to do with the fact that a very heterogeneous coalition led to support for the coup. It comprised economic and social conservative oligarchs, the Catholic Church, and members of the military high command. Several historians and political scientists have documented that these stakeholders had very different visions for the country once President Goulart was deposed. The main struggle between the traditional political elite and the top military leaders was based on who should govern the new regime and its priorities. The legalistic wing of the military and its civilian allies in the UDN party planned for a limited term in office only to institute the reforms necessary to rationalize the bureaucracy, raise productivity to allow capitalism to flourish, and restore "free" political competition to the electoral arena (Hagopian, 1996). But soon, divisions within the traditional elite UDN party emerged as some members rejected the military reforms (Skidmore, 1988, p. 39).

[14] 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).

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 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, giving 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 a 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."[15] 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

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

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 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).

Introduction of the *Sublegenda* Voting System While the military could pursue a strategy of technocratic appointments at the federal and state levels, such an approach was not feasible at the municipality level. At the beginning of the dictatorship, traditional elites remained powerful. They had extensive clientelistic networks that gave them the ability to mobilize a lot of votes at times of elections. As a result, the military pursued a strategy of accommodating the traditional elites while also fostering competition from new political actors.

The two-party system designed by the military posed a challenge to their strategy to increase local competition. By design, only a maximum of two candidates could compete in any local election. Furthermore, the military was concerned that if all traditional elites joined the opposition party, this could have led to critical electoral defeats of the pro-dictatorship party. Thus, they created the *sublegenda* voting system to promote greater political competition while maintaining some elites within the ARENA party.

The *sublegenda* was a balloting mechanism whereby each party could nominate up to three party tickets for the mayor. 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.

While running multiple candidates within a party was feasible in all municipalities, not all mayoral races adopted this practice. Using sublegendas was more common when the military wanted to facilitate the entry of new contestants that would compete with traditional elites, particularly within the ARENA party. 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."

Overall, the adoption of the sublegenda system not only increased competition by allowing more than two contestants. It also fostered political competition from outsider groups, contesting vis-a-vis local elites, with minimum overall risk of electoral defeats to the ARENA party (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, including the provision of highly subsidized agricultural credit to purchase fertilizers and tractors, 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 prevent 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 critical 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, introducing the *sublegenda* system and redistributing 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 significant influence of traditional elites in the design of political institutions (Hagopian, 1996).

However, the new democratic period that emerged in 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 delivering 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 in public affairs, such as the participatory budgeting adopted by many municipalities (Baiocchi, 2006). Providing education and health services at the local level has made political selection and political competition a key ingredient for the supply of high-quality public services in Brazil.[16]

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 before and during the military dictatorship. This section describes the main data sources and presents 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. For these three states, we were able to obtain complete records of names of mayors and electoral results going back to 1945. Nevertheless, these states are representative of the power dynamics that took

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

place in the rest of the country.[17] 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.[18] 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 have information on vote shares and the identity of losing candidates. We will describe these data in more detail as they become relevant.

As described in Section 2, political power in Brazil has been historically organized around familial lines. Thus, we use our data on the mayor's identity to infer their family network. Specifically, we assume 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.[19] Column 4 of Table A1 indicates the family number that identifies family links based on common surnames within a municipality.[20]

The two examples 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) and 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 held office, as several new families came to power. These examples illustrate how different municipalities may have experienced different political power distribution changes after the dictatorship's introduction.

We construct a Herfindahl index to measure political concentration before the military dictatorship

[17] While having only 3 states does raise external validity concerns, our sample of municipalities is not too dissimilar from Brazil as a whole. In the appendix Table A3, we compare several socio-economic characteristics of our sample of municipalities with the rest of Brazil for the year 2000. Although our sample is slightly poorer and less educated, the differences are not big (3.96 years of schooling in our sample compared to 4.24 for the rest of Brazil). The same is true for differences in race or urbanization (the share of urban population in our sample is 0.58 versus 0.61 in the rest of Brazil). See Appendix Figure A2 for maps of Brazil depicting the three states covered in the data.

[18] 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's name is followed by a number indicating the sub-ticket of the candidate. We discuss this measure in more detail in Section 4.3.

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

[20] Several research assistants manually coded the family identifier variable and visually inspected the data to detect mistakes.

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.

Table 1 provides summary statistics for this variable. The average political concentration for the municipalities in our sample prior to the dictatorship was 0.340, which implies that the effective number of traditional elites during this period (i.e., $1/H_{mt}$) was 2.94 families. However, this number masks a considerable amount of heterogeneity. In Appendix Figure A1, we present the histogram of our measure of political concentration before dictatorship. The values range from 0.16 to 1, equivalent to a range of six families evenly sharing power versus one. See also Appendix Figure A2 for maps of Brazil depicting the geographic distribution of our measure of political concentration.[21]

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.[22] It is important to note that the same mayor could only be elected to a single term during this period. Before the dictatorship, 9.3% of local elections reelected the same family. During the dictatorship period, this measure fell to 7.7%, but increased to 9.1% after the dictatorship.

The table also provides information on elite persistence across the regimes. In 76 percent of municipalities, at least one traditional family survived the transition to a dictatorship, and in 46 percent of our municipalities, a family survived both transitions in and out of the dictatorship.

Additional data

Outcomes variables One of our primary 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

[21] During the pre-dictatorship period the timing of local elections was not synchronized across municipalities. On average municipalities held 4.5 elections during this period, with 98% of municipalities holding between 4 and 6 elections. Appendix Table A2 provides summary statistics on the number of local elections held by state and year.

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

commission to measure political competition during the 2000 municipal elections. With these data, we compute a Herfindahl index of vote shares for 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 comes 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 and several agricultural inputs, including fertilizer, tractors, and electrification. These variables are summarized in Panel B of Table 1.

Control variables Brazil had significant regional differences in economic development even before the dictatorship. We digitized the 1940 agricultural and population censuses to account for these differences. We construct several important socio-economic characteristics of the municipality, such as population size, employment rate, the share of workers in the agricultural sector, average production of farms, and share of land devoted to large-scale production in 1940. When using historical data, one issue that arises is the split of municipalities 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 was 25,256 inhabitants, with 38 percent of employment in agriculture. Literacy rates during this period were relatively low, with over 70 percent of the adult population unable to read or write. On average, 19 percent of the population was black. Approximately 37 percent of the municipalities had a mayor from the UDN party (which later became a principal part of the military party) before the dictatorship, whereas only 18 percent had a mayor from the PTB party. We also present summary statistics for rental prices in 1940. This variable measures tenants' monthly rent, and we use it to proxy for income during that period. As shown 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:

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

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 several municipal-level controls that we describe below. Our standard errors are clustered at the municipality level according to the municipal boundaries in 1960. 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 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 Appendix Table A4. 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 several 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 more significant share of the population working in agriculture and lower rental prices, suggesting that living standards were lower in politically concentrated municipalities.

Political concentration is also associated with higher 1940 production levels 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.[23]

Overall, the correlates presented in Appendix Table A4 paint a picture consistent with the historical accounts: local political power was 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.

[23] 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 anonymity reasons, it usually did not report the number of farms with holdings larger than 10,000 hectares.

4.1 Concentration of Political Power and Long-Run Economic Development

This section provides evidence that the association between initial political concentration and economic development changed with the military dictatorship. In Figure 1a, we present a binned scatter plot between log rental prices in 1940 and levels of political concentration before the military dictatorship. The size of the circles is proportional to the number of municipalities included in each observation.[24] Although the 1940 census did not measure income per capita, rental prices are a good proxy for municipality's level of economic development during this period.[25] The figure shows a steep negative association indicating that political power was more concentrated in poorer regions before the dictatorship.

Figure 1b presents a similar plot to Figure 1a, but with log income per capita in 2000 on the vertical axis. The contrast is striking. Whereas Figure 1a depicted a negative relationship between economic development and political concentration, in Figure 1b 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 became 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).[26]

We investigate the robustness and magnitude of these results in Table 2. In columns 1 and 2, we regress the log of rental prices in 1940 on our measure of political concentration pre-dictatorship while controlling for basic geographic and demographic characteristics (e.g., 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 with one family in power pre-dictatorship had 31% lower rental prices in 1940 relative to a municipality with three traditional families that shared power.[27] In columns

[24] Note that given the low number of elections pre-dictatorship – 4.5 on average across municipalities – our measure of political concentration does not take on many different values. Hence, we indicate the number of municipalities behind each observation with the size of the circles.

[25] Appendix Table A5 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 these other commonly used proxies for economic development. The correlation between log rental prices and the share of the population working in agriculture is 0.55, whereas the correlation between log rental prices and literacy rates is 0.46.

[26] See Appendix Figure A3 for analogous figures after partialling out the data against state fixed-effects and distance to the state capital.

[27] Our sample's average measure of political concentration pre-dictatorship is 0.34, corresponding to approximately three families sharing power. The change in political concentration between the average municipality and one where a single family is in power is equivalent to 0.65 units. When multiplied by the estimated coefficient in column 1 we obtain -0.31, which approximately corresponds to a 31% reduction in rental prices.

2 and 3, we explore 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 8 % lower rental prices measured in 2010 and 17% lower income per capita in 2000, relative to municipalities where three families share power.[28]

In columns 4-7, we document the reversal in standards of living previewed in Figure 1b. Municipalities that were more politically concentrated before the dictatorship ended up having higher income levels and higher rental prices post-2000, despite being poorer before the dictatorship. In the context of our previous example, the coefficient in column 5 implies that relative to municipalities where three families shared power pre-dictatorship, municipalities with a single family in power experienced 7.8% higher income per capita in 2000.

Of course, a natural concern is that regional differences in economic and demographic characteristics could drive this reversal. In columns 6-7, 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, the share of blacks, the share of protestants, the share of foreigners, the 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 Appendix Table A6, we present additional robustness checks that augment our baseline specification with additional controls. Column 1 shows the estimates of our preferred specification (Table 2, 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 the driver of long-run development in these areas. 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, the same as what we obtain when the land Gini

[28] Rental prices were not available in the 2000 census.

is included as a control. This result mitigates the concern that the correlation between political concentration and land inequality explains the positive impact on development outcomes.[29] Overall, these results suggest that our estimates are robust to the inclusion of a number of additional controls that may have affected economic development.[30] Finally, note that our results are robust to addressing spatial autocorrelation of standard errors across municipalities. See Table A7 in the Online Appendix.

Reversal Timing In Figure 2, we investigate the timing of the reversal using two proxies of economic activity for which the data are available for the entire period. In panel A, we use log of average agricultural wages, whereas panel B presents the log of the average value per farm. Both measures are reasonable proxies for economic development and well-being. For each panel, we plot the estimated coefficient on the interactions between pre-dictatorship political concentration and year-specific indicators. We estimate these coefficients based on a panel version counterpart of equation 1. Specifically, we regress the outcomes of interest, measured at the municipality-year level, on pre-dictatorship political concentration interacted with time period indicators, with 1960 serving as our base period. We also control for municipality and year fixed-effects.

There are a few things to note in Figure 2. We see little evidence of any pretends prior to the dictatorship. The 1940 coefficients for both outcomes are statistically insignificant and close to zero, at least in the case of log agricultural wages. This is noteworthy because it rules out an alternative explanation for our reversal story: low politically-concentrated places experienced adverse temporary economic shocks before the dictatorship. It also helps to rule out concerns about whether the large macro-political shocks that occurred before the dictatorship (e.g., the economic and political reforms during the Getulio Vargas presidency) affected politically-concentrated places differentially.[31]

[29] For instance, in their study of land ownership 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.

[30] We also explore how much selection on unobservables is necessary to explain away our results using the approach suggested by Oster (2017). For our regression on log income per capita, we estimate that the effects of unobservables would need to be 2.23 as important as the observables to produce a zero treatment effect. This number clearly exceeds one, which is the heuristic that most papers in the literature have adopted as an indication of minimal selection bias.

[31] As an alternative test, we investigate whether changes in political power prior to the dictatorship are correlated with our primary measure of political concentration. Specifically, we created two measures of elite political power: the change in the share of elections won by UDN between 1947-1952 and 1959-1964, and then similarly for PSD. We single out these two parties because these are the parties with which the local elites were most affiliated. Based on these measures, we do find that the share of UDN mayors during 1947-1955 decreased from 39% to 35% during 1956-1964, while the share of PSD mayors over these periods remained constant: 47.7% for 1947-1955 and 48.5% for 1956-1964. Nevertheless, as displayed in columns 1 and 2 of Appendix Table A8, these changes are not associated with our measure of political concentration. In columns 3 and 4, we further investigate whether our measure of political

Additionally, the effects appeared in the 1970s and persisted until the 2000s. While this timing might appear fast to some, it is essential to recognize that by 1970, mayors had experienced at least one full political term under the new regime and thus had plenty of time to enact growth-enhancing policies in response to the increased political competition. Moreover, the effect sizes are not unreasonable in relation to the existing literature. For example, the coefficient on the 1970 interaction term for log agricultural wages is 0.496. This point estimate implies that for a one standard deviation increase in political concentration prior to the dictatorship, log wages increased by 5.5%. For comparison, Besley et al. (2010) estimate the effect of political competition on personal income growth in the U.S. South. Based on their estimates, a 0.3 increase in political competition, which they point out is typical for many Southern US states, would increase personal income per capita by 7.8 percent over a 5-year period. Similarly, Abeberese et al. (2023) use variation in the timing of district-level political regime changes induced by the collapse of President Soeharto in Indonesia. Using firm-level data, they estimate that more than five years after democratization, labor productivity increased by about 8.7%. Also, using cross-country variation, Acemoglu et al. (2019) find that GDP per capita increases to about 6 percent five years after a country democratizes.

4.2 Political Competition and Quality of Governance

This section shows 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 how 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 in column 5 of Table 2. Column 1 of Table 3 presents the correlation between political concentration before and during the dictatorship. If political concentration persisted during the transition to a military regime, we should see a close correlation to 1. Instead, the point estimate is 0.089 (robust s.e.= 0.033). 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-

concentration correlates with changes in other proxies of political power, namely changes in land inequality (1960-1940) and share of agricultural employment (1960-1940). We again do not find that these alternative proxies correlate with our measure of political concentration.

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.[32]

Next, we examine whether political concentration before 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. Mayors were not allowed to serve two consecutive terms during our study period. Families circumvented this limitation by having another family member contest the subsequent election. We compute the average family reelection rates for each municipality across our three different periods. Columns 3 to 5 show the results when these variables are used as dependent variables. Before 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 with high levels of initial political concentration no longer exhibited higher 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 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.[33] 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 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 councilors, relative to municipalities where three families shared power during that period.

Political Competition or Elite Identity? An important question is whether our effects are due to an increase in political competition or a change in the identity of elites (i.e., a selection effect). While it is difficult to identify the effects of these two channels separately, there are at least three reasons why we believe the results are more likely to reflect a change in political competition. First, as we have already documented in columns 1-4, political competition is clearly increasing

[32] 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.

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

over time. And even though the share of non-traditional elites increased over time, these families were not more likely to hold office in more politically-concentrated places during either period (see columns 8 and 9). If the selection effect were strong, we would have expected the share of non-traditional elites to be higher in our 'treated' places.

Second, given that our political concentration variable does not appear to be correlated with our measures of elite persistence, we can run a horse race between these measures on log per capita income. As we can see from Appendix Table A9, the estimated association between income per capita and political concentration prior to the dictatorship is unaffected by including either the share of non-traditional elites during the dictatorship, the share of non-traditional elites post-dictatorship, or both. Moreover, the share of non-traditional elites during the dictatorship is uncorrelated with income per capita. Interestingly, the share of non-traditional elite post-dictatorship does correlate with income per capita. However, this control does not affect the magnitude or significance of the effect of pre-dictatorship political competition.

Third, we can also look at longer-run selection effects by comparing the characteristics of the candidate pool for mayor and local council. In Appendix Table A10, we estimate the correlation between political concentration and various candidates' characteristics averaged across the 2000, 2004, and 2008 elections. Generally, we do not find candidate characteristics to be associated with political concentration before the dictatorship. The sole exception is the fraction of local councilors with a college education. Although statistically significant, the magnitude of this effect is relatively small.

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 about mechanisms. In Table 4, we investigate the relationship between political concentration prior to the dictatorship and local governance. If our findings on long-run development are 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 of 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 concentration are associated with significant improvements in these two outcomes. In column 3, we examine the incidence of corruption by using the number of irregularities detected by Brazil's random audit program as a

dependent variable. 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.[34]

In the case of literacy rates, we can also explore how this outcome changed over time by political concentration. In Figure 3, we present a similar event-study graph as shown previously, plotting the estimated coefficient on the interactions between pre-dictatorship political concentration and year-specific indicators. The coefficients are based on a panel version counterpart of equation 1 in which we control for a municipality and year fixed-effects. We use 1960 as the base year. As Figure 3 depicts, we see improvements in literacy rates during the dictatorship in previously politically more concentrated areas. Thus, it is likely that these improvements in public goods did contribute to the reversals. Moreover, there were no improvements in more concentrated places before the 1970 census, consistent with our previous findings.

4.3 How did the Military 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. This section investigates 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"). However, one concern with this measure 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 the 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 A11, we provide some descriptive statistics on the elections during the dictatorship for our sample. Column 1 shows the average number of elections per election year. On

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

average, about 1,000 municipalities held elections each election year, 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 under ARENA's party umbrella. Under this system, ARENA could promote competition from non-traditional elite candidates while not alienating the traditional elites.

In Table 5, we test whether political concentration prior to the dictatorship is associated with adopting the *sublegenda* system. Our hypothesis is that the ARENA party was more likely to use *sublegendas* in the municipalities with higher concentration levels. In these places, the traditional elites were more powerful. Using the *sublegenda* would allow ARENA to facilitate the 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 5, we show the effects for any party, whereas in columns 2 and 3 we focus on the presence of *sublegendas* in ARENA or MDB, respectively. We find that higher levels of political concentration are associated with greater use of a *sublegenda* within the ARENA party. Municipalities where a single family was in power pre-dictatorship have a 22% higher likelihood of adopting *sublegendas* in the ARENA party relative to municipalities where three families shared power during that period. The effects for MDB party are small and insignificant.

In Appendix Table A12, we also provide suggestive evidence that using *sublegenda* effectively increased the vote share of ARENA. We regress the vote shares for the ARENA party during the 1972 and 1976 municipal elections on an indicator of 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.[35] We find that a party's use of *sublegenda* is strongly 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 14.2 percentage point decline.

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

In Table A13, we provide additional evidence on the effect of political concentration on the identity of those 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. As shown before, these regions were likelier 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. Furthermore, we find suggestive evidence that ARENA *sublegendas* increased the likelihood of having non-traditional elites contesting vis-a-vis traditional elites. (The estimate has an associated p-value of 0.119.) In contrast, Panel C indicates no significant effects on municipalities where 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 resonate 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 before 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 significant expansion of credit: between the years 1970 and 1980, the average loan per farm increased 22-fold in real terms.

Table 6 estimates whether this government credit expansion was targeted at more politically concentrated municipalities. We focus on outcomes measured in 1980 and report results for outcomes measured in 1970 in Appendix Table A14. 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 had 42% more farms in 1980 than municipalities where three 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 Mechanisms

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 directly affected 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 the usage of fertilizers, tractors, and electricity, which were important indicators of modernization during this period. Columns 5 to 7 of Table 6 report the correlation between political concentration pre-dictatorship and usage of various agricultural inputs measured in 1980.[36] 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 2.4% increase in the share of farms that use fertilizer.

In columns 8 to 11, we investigate whether more politically concentrated municipalities experienced more significant shifts in employment away from agriculture into other sectors, indicating

[36] See Appendix Table A15 for similar results when measuring inputs in 1970.

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 minor 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 2.

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 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 6. We present the results of this robustness check in columns 1-3 of Appendix Table A16. Column 1 reproduces our baseline result for the sample for which we have measures of agricultural modernization. In column 2 we incorporate the changes in agricultural inputs between 1960 and 1980 as controls. In column 3, we add as controls changes in sectoral employment between 1970 and 1980. Our primary estimate remains large and statistically significant even when including these demanding controls. This suggests that agricultural modernization is not a quantitatively-relevant alternative mechanism for our main results.

Migration. One potential alternative explanation is that migration patterns could drive the reversal results. That would be the case if, for instance, high-skilled populations are more likely to in-migrate to initially more concentrated municipalities. We examine the correlation between migration and pre-dictatorship political competition to investigate this. We report the results in Appendix Table A17. In columns 1 to 3, we regress the share of migrants in 1970, 1980, and 1991, respectively, on our measure of elite political concentration.[37] The coefficients are statistically insignificant. Furthermore, the negative coefficient would suggest that the municipalities exhibit stronger economic performance after the dictatorship and, if anything, receive lower migration rates, which would go against our findings. Moreover, in column 4, we regress the change in the percentage of migrants between 1970 and 1991 on the pre-dictatorship measure of political concentration. The coefficient is very small and not statistically significant.

To further investigate the robustness of our results, in column 4 of Appendix Table A16, we include

[37] For each census, we know whether an individual was born in the municipality and for how long they have lived there. Thus, we calculate the share of individuals who migrated to a given municipality (were not born there) in the last ten years.

as a control in our main specification the change in the share of migrants between the 1970 and 1991 censuses. Our main coefficient on pre-dictatorship political concentration is unaffected by these controls and becomes even slightly larger once we account for migration patterns.[38]

Federal transfers. Another policy by which the central government might have affected politically concentrated areas is the provision of federal transfers. These intergovernmental transfers can be an important source of public goods, which then might have contributed to the reversal we documented. To test this channel, we collected historical intergovernmental transfers during the end of the dictatorship in 1981, along with data on the contracts that local governments signed with the federal government for public good provision and infrastructure for the first two years of available data (1996 and 1997). In Appendix Table A18, we report the estimated correlation between political concentration before the dictatorship and federal transfers per capita value. We do not find evidence that the federal government favored these places with more federal resources in 1981 or 1996/1997.

Political Repression. Finally, we might worry that changes in political competition might be correlated with initial levels of political concentration related to political ideology. Perhaps localities that were initially more left-wing experienced higher levels of repression during the dictatorship. In Appendix Table A19 we use the vote share for President Goulart (i.e., left-wing vote share) in 1960 and show that the political concentration before or during the dictatorship is not correlated with the initial left-wing vote share. Moreover, our long-run results are robust to including the left-wing share of votes in the regression (see Column 4).

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 among 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 po-

[38] The results are also highly robust to controlling for levels of migration in different years.

litical actors. Even though these reforms were introduced at a national scale, their implementation was targeted toward 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 the 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 on 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 change in institutions can affect political competition, reduce clientelism, and improve public service delivery remains an important agenda for future work.

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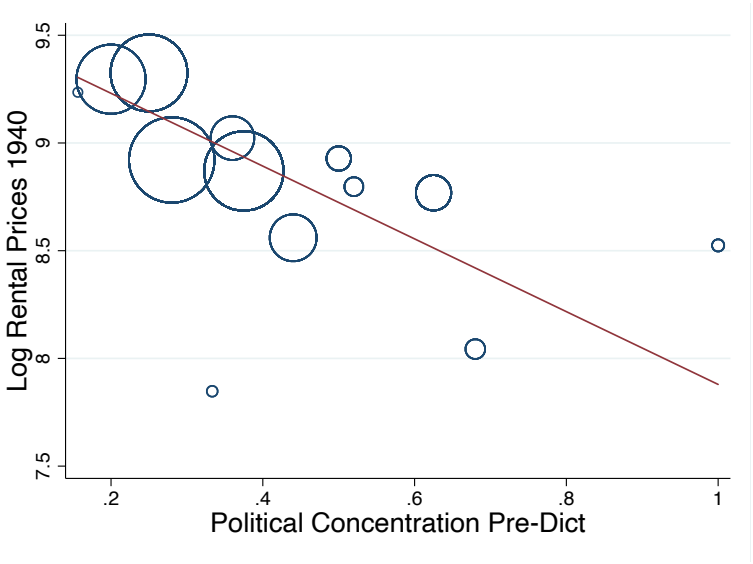
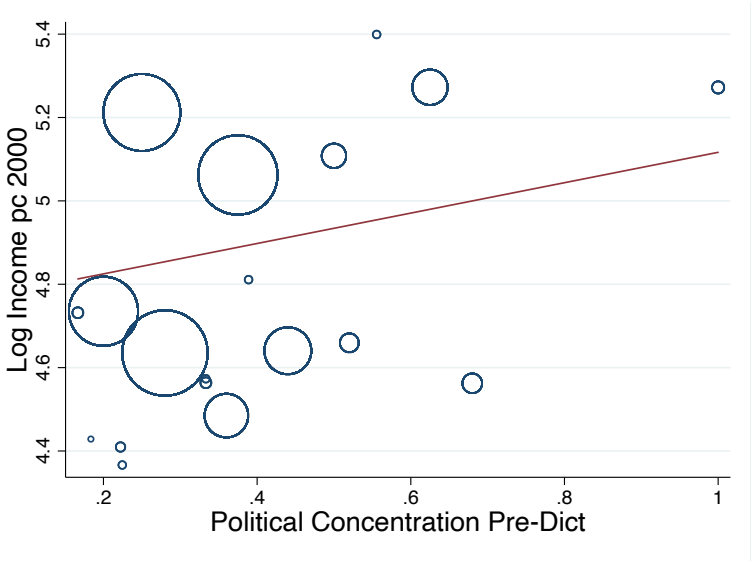


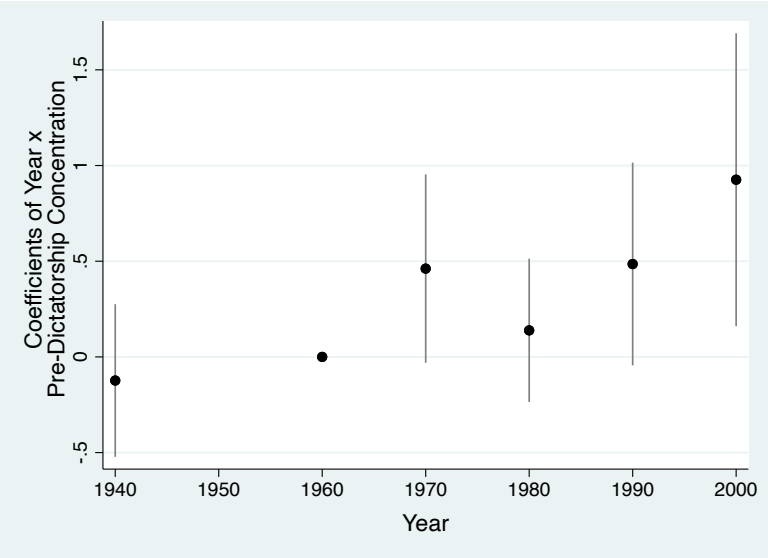
(a) Income Proxy in 1940 and Pre-Dictatorship Political Concentration



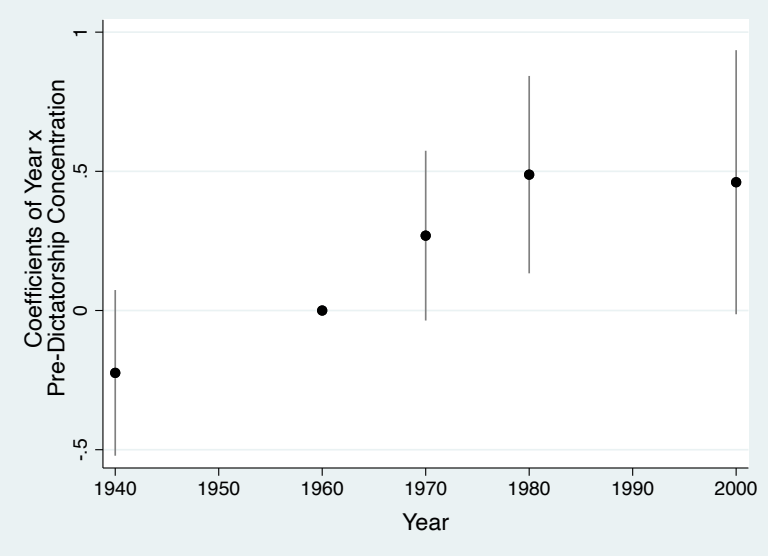
(b) Income per capita in 2000 and Pre-Dictatorship Political Concentration

Figure 1: Reversal in the Relationship between Political Concentration and Development

Notes: The first figure shows a binned scatter plot between log rental prices in 1940 and levels of political concentration pre-dictatorship. The size of the circles is proportional to the number of municipalities included in that observation. The second figure shows a similar plot, but showing log income per capita in 2000 in the y-axis.



(a) Log Agricultural Wages as Dependent Variable



(b) Log Value per Farm as Dependent Variable

Figure 2: Timing of the Reversal on Proxies of Development

Notes: These figures show the coefficients and corresponding 95% confidence intervals of the interaction between pre-dictatorship political concentration and year-specific indicators. All regressions include municipality and year fixed-effects as controls. The omitted category is the year 1960.

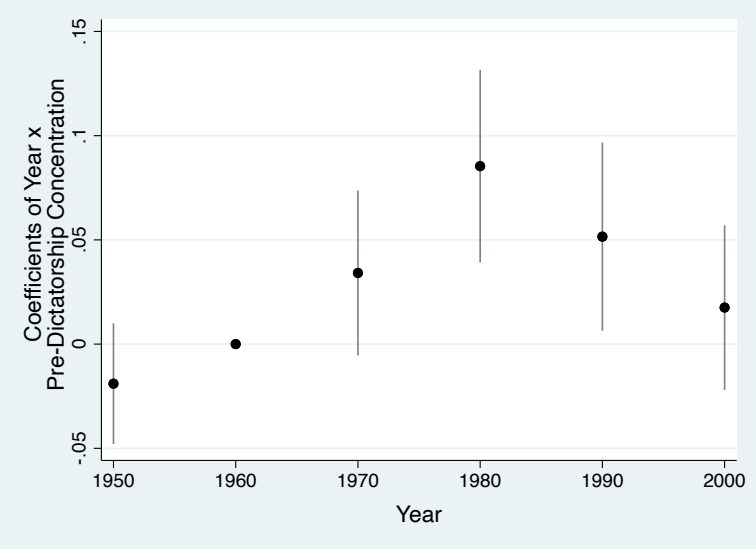


Figure 3: Timing of the Reversal on Governance Outcomes: Literacy

Notes: This figure shows the coefficients and corresponding 95% confidence intervals of the interaction between pre-dictatorship political concentration and year-specific indicators. All regressions include municipality and year fixed-effects as controls. The omitted category is the year 1960.

Table 1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
A. Measures of Political Power:					
Political concentration pre-dictatorship	675	0.340	0.124	0.156	1
Average family reelection rate pre-dictatorship	675	0.093	0.151	0	0.750
Average family reelection rate during dictatorship	957	0.077	0.156	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	675	0.757	0.429	0	1
At least one family transitions pre-dict to democracy	675	0.455	0.498	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	957	845.184	799.050	22	6085
Average Size of Farms 1970	957	103.002	152.530	1.743	1966
Log Government Credit Per Farm 1970	949	0.500	0.434	0	2.878
Number of Tractors per farm 1970	957	0.016	0.033	0	0.378
Share of farms with access to electricty 1970	957	0.064	0.085	0	0.699
Share of farms that use fertilizer 1970	957	0.273	0.276	0	0.995
C. Covariates:					
Log rental prices 1940	392	8.862	1.315	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	392	25,256	19,238	3,444	211,377
Share of Employment in Agriculture 1940	392	0.381	0.086	0.02	0.66
Illiteracy Rate 1940	392	0.700	0.119	0.23	0.94
Share of Blacks 1940	392	0.191	0.094	0.04	0.59
Share of Protestants 1940	392	0.007	0.016	0	0.15
Share of foreigners 1940	392	0.004	0.007	0	0.04
Sugar production per farm 1940	392	0.063	0.128	0	1.59
Cotton production per farm 1940	389	2.120	4.242	0	34.46
UDN in power pre-dictatorship	392	0.370	0.483	0	1
PTB in power pre-dictatorship	392	0.179	0.383	0	1

Notes: This table shows descriptive statistics for our sample of municipalities. The unit of observation is the municipality. The period referred to as "pre-dictatorship" includes years 1947 to 1963. The period referred to as "during dictatorship" includes years 1964 to 1985. The period referred to as "post-dictatorship" includes years 1986 to 2000. *The average reelection rate post-dictatorship is obtained by averaging across municipal elections in the period 1986 to 1996. Elections in 2000 are excluded because mayors could stand for reelection for the first time. The number of observations changes because of changes in municipal boundaries over time.

Table 2: Political Concentration and Long-Run Development

	Contemporaneous Relationships			Reversal Results			
	(1) Log Rental Prices 1940	(2) Log Rental Prices 2010	(3) Log Income pc 2000	(4) Log Rental Prices 2010	(5) Log Income pc 2000	(6) Log Rental Prices 2010	(7) Log Income pc 2000
Political Concentration:							
Pre-dictatorship	-0.470*			0.198***	0.117*	0.182***	0.267***
	(0.277)			(0.066)	(0.070)	(0.067)	(0.064)
Post-dictatorship		-0.128**	-0.257***				
		(0.059)	(0.057)				
Number of observations	392	1072	1072	1072	1072	1072	1072
R^2	0.66	0.67	0.73	0.67	0.72	0.74	0.69
Mean of Dep. Var	8.862	.614	4.868	4.868	4.868	4.868	4.868
Geographic Controls	✓	✓	✓	✓	✓	✓	✓
Demographic Controls 1940	✓	✓	✓	✓	✓	✓	✓
State FE	✓	✓	✓	✓	✓	✓	✓
Socio-Economic Char. 1940						✓	✓
Number of clusters		688	688	688	688	688	688

Notes: The unit of observation is the municipality. Each column corresponds to a separate regression where the 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. Columns 6 and 7 additionally controls for socio-economic characteristics in 1940 (share of non-agricultural population and a quartic on log rental prices). In column 1 robust standard errors, while in the rest of the columns standard errors clustered at the municipalities in existence in 1960. *** p<0.01, ** p<0.05, *p<0.1.

Table 3: Effects on Political Competition and Share of Non-Traditional Families

	Political Concentration of Families		Average Family-Level Reelection Rate			Herfindahl Index of Candidate Concentrat.		Share of Non-Traditional Families	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Dict	Post-Dict	Pre-Dict	Dict	Post-Dict	Mayor 2000	Councilor 2000	Dict	Post-Dict
Political Concentration:									
Pre-dictatorship	0.089***	0.047	0.886***	0.128***	0.073	-0.059**	-0.015***	-0.040	0.084
	(0.033)	(0.040)	(0.035)	(0.044)	(0.061)	(0.026)	(0.004)	(0.066)	(0.070)
Number of observations	957	1072	675	957	1072	1072	1072	957	1072
R^2	0.082	0.118	0.540	0.041	0.067	0.069	0.298	0.067	0.093
Mean of Dep. Var.	0.336	0.430	0.093	0.077	0.091	0.495	0.037	0.718	0.807
Baseline controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of clusters	665	688	594	665	688	688	688	665	688

Notes: The unit of observation is the municipality (in column 1, 4 and 8 municipalities of 1970, in column 3 municipalities of 1960, in rest of columns municipalities in 2000). 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 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table 4: Effects on Local Governance

	Literacy Rate 2000	Infant Mortality 2000	Num. Corrupt Irregularities
	(1)	(2)	(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	✓	✓	✓
Number of clusters	688	647	155

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 varies because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in the specification of Table 2, column 6. 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 5: Effects on the Adoption of *Sublegenda* Voting System

	During Dictatorship		
	(1) Any Sublegenda	(2) ARENA Sublegenda	(3) MDB Sublegenda
Political Concentration:			
Pre-dictatorship	0.165	0.219*	0.047
	(0.124)	(0.131)	(0.081)
Number of observations	935	935	935
R^2	0.028	0.030	0.058
Mean of Dep. Var.	0.720	0.658	0.105
Baseline controls	✓	✓	✓
State Intercepts	✓	✓	✓
Number of clusters	646	646	646

Notes: The unit of observation corresponds to municipalities in 1970. 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 varies because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in specification in Table 2, column 6. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table 6: Effects on Agricultural Credit and Entry of Agricultural Businesses in 1980

	Log Credit per Farm		Number of Farms	Average Farm Size	Agricultural Inputs			Sector of Employment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Govt	Non-Govt			Tractors	Electricity	Fertilizer	Agriculture	Manufac-turing	Services	Commerce
Political Concentration:											
Pre-dictatorship	0.533**	0.315	747.035***	-49.824	0.019	0.016	0.093**	-0.043	0.003	0.016*	0.024**
	(0.228)	(0.318)	(184.712)	(36.581)	(0.015)	(0.026)	(0.043)	(0.042)	(0.029)	(0.008)	(0.011)
Number of observations	942	942	957	957	957	957	957	957	957	957	957
R^2	0.323	0.238	0.299	0.261	0.477	0.417	0.811	0.346	0.295	0.320	0.265
Mean of Dep. Var.	3.665	1.348	872.597	105.348	0.061	0.116	0.475	0.870	0.065	0.023	0.042
Baseline controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of clusters	657	657	665	665	665	665	665	665	665	665	665

Notes: The unit of observation corresponds to municipalities in 1980. The dependent variables are obtained from the 1980 agricultural census and are described by the column headings. The number of observations varies because of missing information in the dependent variables. All specifications include baseline controls, which are those included in Table 2, column 6. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. *** 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 classifies soil types into 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.[39] 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 A20. 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.

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

6.3 Appendix Tables & Figures

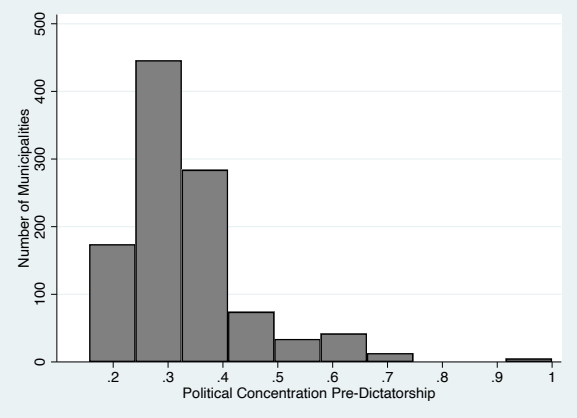
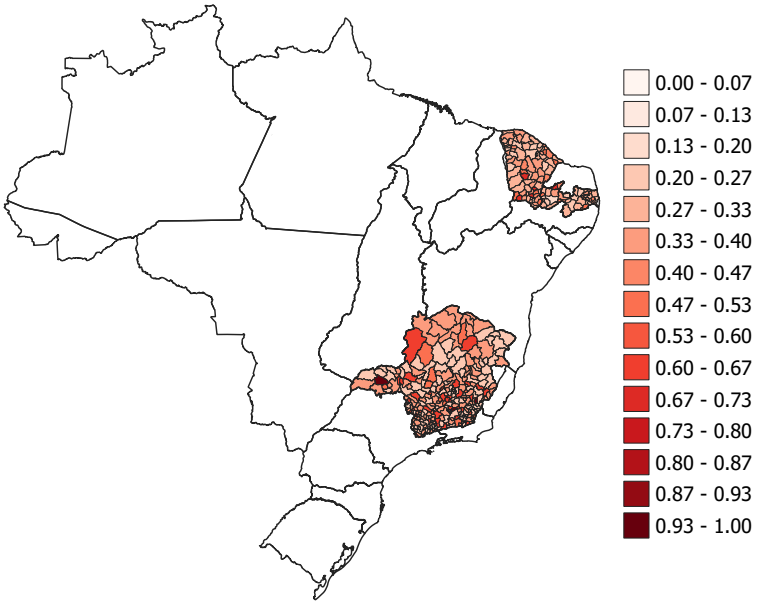
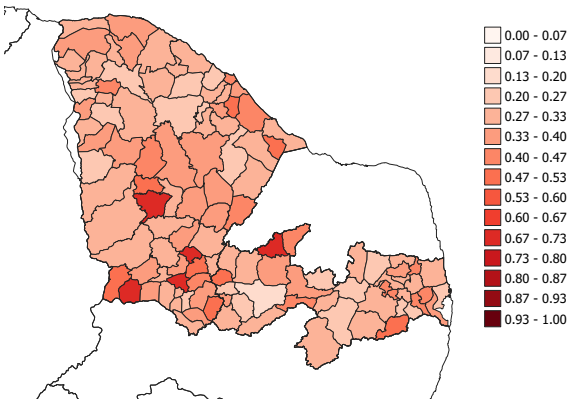


Figure A1. Distribution of Pre-Dictatorship Political Concentration across Municipalities

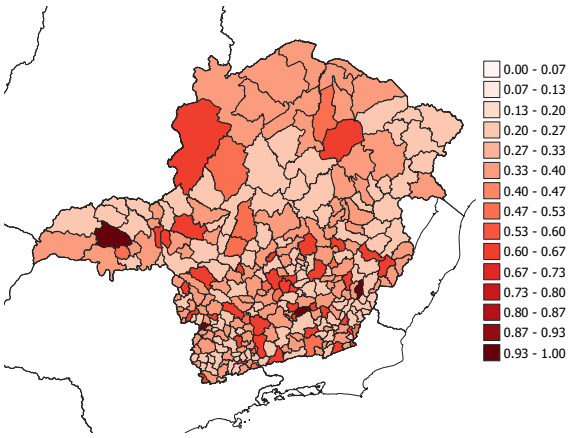
Notes: This figure shows the histogram of municipalities by their level of political concentration pre-dictatorship, which is measured by the Herfindahl index based on the share of terms governed by the same political family.



(a) Map of Brazil with selected states



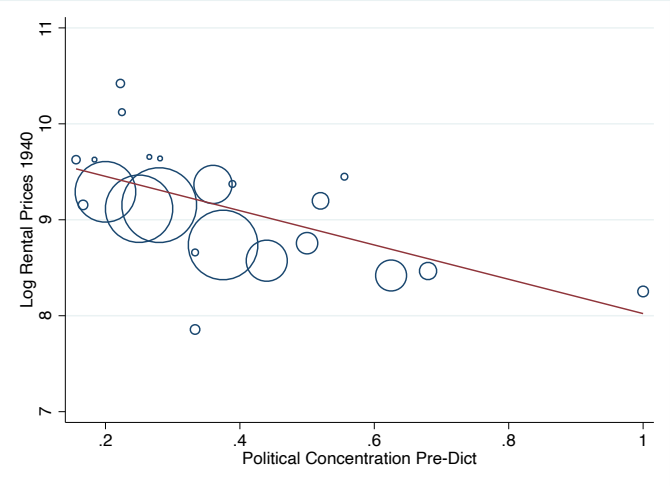
(b) Ceará (West) and Paraíba (East)



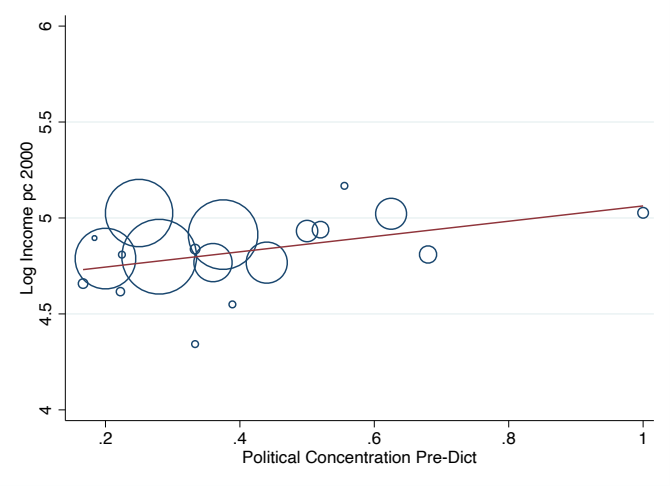
(c) Minas Gerais

Figure A2. Maps of Brazil and Selected States

Notes: These maps show the geographic distribution of pre-dictatorship political concentration in the states of Ceará, Paraíba and Minas Gerais. The municipal boundaries correspond to the 1940 boundaries.



(a) Income Proxy in 1940 and Pre-Dictatorship Political Concentration (residuals)



(b) Income per capita in 2000 and Pre-Dictatorship Political Concentration (residuals)

Figure A3. Reversal in the Relationship between Political Concentration and Development, with controls

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 and state fixed-effects. The size of the circles is proportional to the number of municipalities included in that observation. The second figure shows a similar residual plot, but showing the residuals of log income per capita in 2000 in the y-axis. The binned scatter plots are produced with the *binsreg* command which incorporates the correction proposed by Cattaneo et al. (forthcoming).

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 5 shows the frequency of elections when adding up the three states.

Table A3: Summary Statistics (Year 2000)

Variable	**Mean**	**Std. Dev.**	**Mean**	**Std. Dev.**
	Estimating Sample: Cear, Paraiba, Minas Gerais		All Municipalities in Brazil	
	(1)	(2)	(3)	(4)
Income per capita (R$ monthly)	185.81	91.10	221.45	113.69
Literacy Rate	0.76	0.11	0.78	0.12
Years of Schooling	3.96	0.93	4.24	1.14
Urban	0.58	0.17	0.61	0.19
Labor Force Participation	0.59	0.05	0.62	0.07
Employed	0.47	0.06	0.49	0.07
Homeowner	0.75	0.08	0.77	0.09
Households with Electricity	0.90	0.10	0.87	0.15
Share of Whites	0.50	0.18	0.53	0.25
Observations	1,072		5,565	

Notes: This table shows descriptive statistics for our sample of municipalities for the year 2000 collected by Ipums Data. The unit of observation is the municipality. Columns 1 and 2 restrict the sample to the set of municipalities in our estimation sample. Columns 3 and 4 report statistics for all municipalities in Brazil.

Table A4: 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. When the regressor of interest is the state indicator (Minas Gerais or Ceara indicator), we do not control for state fixed-effects. The unit of observation is the municipality according to its 1940 boundaries. There are 392 observations included in each regression, except for land gini in 1940, which is only available for 348 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. Robust standard errors in parenthesis.

Table A5: Correlates of Rental Prices in 1940

	Log Rental Prices 1940	
	(1)	(2)
Share of Employment not in Agriculture 1940	5.115***	
	(0.509)	
Literacy Rate 1940		5.058***
		(0.719)
Number of observations	392	392
R^2	0.44	0.29
Mean of Dep. Var	8.862	8.862
Mean of Indep. Var	.619	.3
State Intercepts	✓	✓

Notes: The unit of observation corresponds to municipalities in 1940. Each column corresponds to a separate regression where the dependent variable is regressed on the regressor displayed and state fixed-effects. The dependent is the log of rental prices in 1940. Robust standard errors in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A6: 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					✓
Number of clusters	681	681	681	681	608

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 the specification in Table 2, column 6. 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 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A7: Robustness Check for Spatial Autocorrelation of the Standard Errors

	(1) Log Income per Capita 2000	(2) Herfindahl Index Mayoral Candidate Concentration 2000	(3) Literacy Rate 2000	(4) Infant Mortality 2000	(5) Number of Corrupt Irregularities	(6) ARENA Sublegenda	(7) Log Gov Credit 1980
Political Concentration:							
Pre-dictatorship	0.182***	-0.059**	0.028**	-17.479**	-0.381**	0.219*	0.533**
Clustered Standard Errors	(0.067)	(0.026)	(0.012)	(7.721)	(0.191)	(0.131)	(0.228)
Conley Standard Errors	[0.059]	[0.020]	[0.004]	[6.912]	[0.166]	[0.135]	[0.239]
Number of observations	1072	1072	1072	930	172	935	942
R^2	0.744	0.069	0.829	0.023	0.621	0.030	0.323
Mean of Dep. Var.	4.868	0.495	0.776	33.738	4.219	0.658	3.665
Baseline controls	✓	✓	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓	✓	✓
Number of clusters	688	688	688	647	155	646	657

Notes: The unit of observation is the municipality. The dependent variables and specifications are the same as those described in previous tables. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. Conley Standard Errors adjusting for autocorrelation in square brackets. *** p<0.01, ** p<0.05, *p<0.1.

Table A8: Changes in Political Power Prior to the Dictatorship

	Dependent Variables: Changes in Proxies for Political Power Pre Dictatorship			
	(1) UDN	(2) PSD	(3) Gini	(4) Agricultural
Pol Comp. Pre-dictatorship	-0.103	-0.046	-0.009	-0.004
	(0.177)	(0.162)	(0.029)	(0.021)
N	391	391	345	376
Number of observations	391	391	345	376
R^2	0.03	0.06	0.20	0.32
Mean of Dep. Var	-0.05	0.01	0.13	-0.05
Geographic Controls	✓	✓	✓	✓
Demographic Controls 1940	✓	✓	✓	✓
State FE	✓	✓	✓	✓
Number of clusters	.	.	.	.

Notes: The unit of observation is the municipalities in 1940. Each column corresponds to a separate regression where the dependent variables are changes in different measures of elite power between two different pre-dictatorship periods. In column 1 and 2, the dependent variables correspond to changes in the probability of UDN or PSD victories, respectively, between 1947-1952 and 1959-1964. In columns 3 and 4, the dependent variables correspond to the change in the land Gini coefficient and the change in the share of agricultural employment, between 1940 and 1960. All specifications include baseline controls and state fixed-effects. *** p<0.01, ** p<0.05, *p<0.1.

Table A9: Horse race between Political Concentration and Elite Persistence

	Log Income per Capita 2000		
	(1)	(2)	(3)
Politial Comp. Pre-dictatorship	0.181***	0.175***	0.171**
	(0.067)	(0.066)	(0.066)
Share of Non-Traditional Elites (Dictatorship)	-0.020		-0.054
	(0.034)		(0.036)
Share of Non-Traditional Elites (Post-Dictatorship)		0.079**	0.096***
		(0.031)	(0.032)
Number of observations	1072	1072	1072
R^2	0.74	0.75	0.75
Mean of Dep. Var	4.87	4.87	4.87
Geographic Controls	✓	✓	✓
Demographic Controls 1940	✓	✓	✓
State FE	✓	✓	✓
Number of clusters	688	688	688

Notes: The unit of observation is the municipality. Each column corresponds to a separate regression where the dependent variable log income per capita in 2000. All specifications include baseline controls and state fixed-effects. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. There are 688 clusters. *** p<0.01, ** p<0.05, *p<0.1.

Table A10: Long Run Effects on Political Selection

	Mayors				Councilors			
	(1) College	(2) Male	(3) Age	(4) White Collar	(5) College	(6) Male	(7) Age	(8) White Collar
Politial Comp. Pre-dictatorship	0.101	-0.033	0.492	0.051	0.036**	-0.017	0.723	-0.021
	(0.073)	(0.032)	(1.433)	(0.047)	(0.017)	(0.014)	(0.509)	(0.025)
Number of observations	1072	1072	1072	1072	1072	1072	1072	1071
R^2	0.06	0.08	0.06	0.07	0.28	0.09	0.19	0.05
Mean of Dep. Var	0.43	0.91	46.76	0.34	0.11	0.81	43.49	0.15
Geographic Controls	✓	✓	✓	✓	✓	✓	✓	✓
Demographic Controls 1940	✓	✓	✓	✓	✓	✓	✓	✓
State FE	✓	✓	✓	✓	✓	✓	✓	✓
Number of clusters	688	688	688	688	688	688	688	687

Notes: The unit of observation corresponds to municipalities in existence in 1970. Each column corresponds to a separate regression where the dependent variables are various characteristics of candidates in local elections averaged across the 2000, 2004, and 2008 elections. All specifications include baseline controls and state fixed-effects. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. There are 688 clusters. *** p<0.01, ** p<0.05, *p<0.1.

Table A11: 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 A12: Sublegenda and ARENA's Vote Share

	ARENA vote share 1972		ARENA vote share 1976		
	(1)	(2)	(3)	(4)	(5)
Sublegenda	0.119***		0.186***		
	(0.027)		(0.030)		
ARENA Sublegenda		0.198***		0.221***	0.200***
		(0.021)		(0.023)	(0.022)
MDB Sublegenda		-0.319***		-0.198***	-0.142***
		(0.033)		(0.026)	(0.026)
ARENA vote share in 1972					0.345***
					(0.059)
Number of observations	277	277	274	274	274
R^2	0.187	0.461	0.219	0.455	0.553
Mean of Dep. Var.	0.722	0.722	0.733	0.733	0.733
Baseline controls	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓
Number of clusters	183	183	181	181	181

Notes: The unit of observation corresponds to municipalities in 1970. 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 3 to 5 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 the specification in Table 2, column 6. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A13: 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	-0.365*	-0.070	0.435
Pre-dictatorship	[0.199]	[0.351	[0.315]
Observations	259	259	259
R-squared	0.039	0.079	0.074
Mean	0.147	0.537	0.317
Number of clusters	172	172	172
	Panel B. Elections with ARENA sublegenda		
Political Concentration	-0.491**	-0.160	0.651
Pre-dictatorship	[0.229]	[0.428]	[0.416]
Observations	186	186	186
R-squared	0.110	0.142	0.087
Mean	0.124	0.469	0.409
Number of clusters	142	142	142
	Panel C. Elections without ARENA sublegenda		
Political Concentration	0.109	-0.024	
Pre-dictatorship	[0.470]	[0.529]	
Observations	73	73	
R-squared	0.194	0.215	
Mean	0.205	0.712	
Number of clusters	53	53	

Notes: The unit of observation corresponds to municipalities in 1970. 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 presents the results for all municipalities. Panel B restricts 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 the specification in Table 2, column 6. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A14: Effects on Agricultural Credit and Entry of Agricultural Businesses in 1970

	Log Credit per Farm		Number of Farms	Average Farm Size
	(1) Govt	(2) Non-Govt	(3)	(4)
Political Concentration:				
Pre-dictatorship	0.250**	-0.024	674.544***	-38.472
	(0.098)	(0.048)	(169.697)	(29.592)
Number of observations	949	949	957	957
R^2	0.347	0.165	0.296	0.295
Mean of Dep. Var.	0.500	0.132	845.184	103.002
Baseline controls	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓
Number of clusters	660	660	665	665

Notes: The unit of observation corresponds to municipalities in 1970. The dependent variables are obtained from the 1970 agricultural census and are described by the column headings. The number of observations varies because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in the specification in Table 2, column 6. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A15: Effects on Agricultural Modernization in 1970

	Agricultural Inputs			Sector of Employment			
	(1) Tractors	(2) Electricity	(3) Fertilizer	(4) Agriculture	(5) Manufacturing	(6) Services	(7) Commerce
Political Concentration:							
Pre-dictatorship	-0.005	0.007	0.090*	-0.043	0.019	0.011*	0.013
	(0.006)	(0.017)	(0.047)	(0.034)	(0.026)	(0.006)	(0.009)
Number of observations	957	957	957	957	957	957	957
R^2	0.323	0.502	0.671	0.362	0.284	0.308	0.303
Mean of Dep. Var.	0.016	0.064	0.273	0.896	0.045	0.020	0.038
Baseline controls	✓	✓	✓	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓	✓	✓	✓
Number of clusters	665	665	665	665	665	665	665

Notes: The unit of observation corresponds to municipalities in 1970. The dependent variables are obtained from the 1970 agricultural census and are described by the column headings. The number of observations varies because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in the specification in Table 2, column 6. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A16: Robustness to Controlling for Agricultural Modernization

	Log Income Per Capita 2000			
	(1)	(2)	(3)	(4)
Political Concentration:				
Pre-dictatorship	0.175***	0.147**	0.163**	0.181***
	(0.068)	(0.066)	(0.066)	(0.067)
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)	
Δ Migration 1991-1970				-0.237
				(0.151)
Number of observations	946	946	946	946
R^2	0.730	0.754	0.765	0.731
Mean of Dep. Var.	4.923	4.923	4.923	4.923
Baseline controls	✓	✓	✓	✓
State Intercepts	✓	✓	✓	✓
Number of clusters	659	659	659	659

Notes: The unit of observation is the municipality. The dependent variable is log income per capita in 2000. The number of observations varies 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 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A17: Political Concentration and Migration

	Share of Migrants			
	(1) 1970	(2) 1980	(3) 1991	(4) 1970-1990
Politial Comp. Pre-dictatorship	-0.029	-0.001	-0.004	0.005
	(0.019)	(0.021)	(0.014)	(0.026)
Number of observations	957	957	982	957
R^2	0.17	0.15	0.13	0.05
Mean of Dep. Var	0.14	0.16	0.16	0.11
Geographic Controls	✓	✓	✓	✓
Demographic Controls 1940	✓	✓	✓	✓
State FE	✓	✓	✓	✓
Number of clusters	665	665	679	665

Notes: The unit of observation is the municipality in 1970. Each column corresponds to a separate regression. The dependent variable in columns 1 to 3 correspond to share of migrants in different points in time. These variables have been winsorized for top values since there were a few municipalities with very high migration shares. The dependent variable in column 4 corresponds to changes in the share of migrants between 1970 and 1990. All specifications include baseline controls and state fixed-effects. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A18: Political Concentration and Transfers from Upper Levels

	(1) Log Federal Transfers per capita 1981	(2) Log Discretionary Transfers (Convenios) per capita 1996-97
Pre-dictatorship	-0.005 (0.097)	-0.087 (0.420)
N	873	1019
Number of observations	873	1019
R^2	0.301	0.248
Mean of Dep. Var	0.995	2.285
Geographic Controls	✓	✓
Demographic Controls 1940	✓	✓
State FE	✓	✓
Number of clusters	624	667

Notes: The unit of observation is the municipality (in column 1 in 1981, in column 2 in 1995). Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. *** p<0.01, ** p<0.05, *p<0.1.

Table A19: Share of votes for President Goulart

	Political Concentration			Income per capita
	(1) Pre-dictatorship	(2) Dictatorship	(3) Post-Dictatorship	(4) 2000
Share of Votes for Goulart	-0.020	0.024	-0.081*	-0.235***
	(0.074)	(0.038)	(0.045)	(0.076)
Pre-dictatorship				0.182***
				(0.067)
N	385	932	1038	1038
Number of observations	385	932	1038	1038
R^2	0.07	0.07	0.12	0.74
Mean of Dep. Var	0.36	0.34	0.43	4.87
Geographic Controls	✓	✓	✓	✓
Demographic Controls 1940	✓	✓	✓	✓
State FE	✓	✓	✓	✓
Number of clusters	384	650	675	675

Notes: The unit of observation is the municipality. The dependent variables in columns 1 to 3 correspond to measures of political concentration measured over three different periods. The dependent variable in column 4 is log income per capita in 2000. All the specifications include baseline controls and state fixed-effects. 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.

Table A20: 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**	0.533**
	(0.067)	(0.026)	(0.012)	(7.721)	(0.191)	(0.128)	(0.228)
Obs	1,072	1,072	1,072	930	172	1,045	942
R-squared	0.744	0.069	0.829	0.023	0.621	0.038	0.323
	Panel B. Robustness to ignoring most common surname						
Pol Conc. Pre-dict.	0.171***	-0.055**	0.017	-14.703*	-0.404**	0.239*	0.808***
	(0.063)	(0.027)	(0.011)	(7.702)	(0.196)	(0.127)	(0.232)
Obs	1,072	1,072	1,072	930	172	1,045	942
R-squared	0.744	0.069	0.828	0.022	0.622	0.037	0.327
	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*	0.788***
	(0.063)	(0.028)	(0.011)	(7.674)	(0.194)	(0.127)	(0.232)
Obs	1,072	1,072	1,072	930	172	1,045	942
R-squared	0.744	0.069	0.828	0.022	0.623	0.037	0.327
	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**	0.732***
	(0.064)	(0.029)	(0.012)	(7.436)	(0.188)	(0.125)	(0.245)
Obs	1,072	1,072	1,072	930	172	1,045	942
R-squared	0.744	0.069	0.828	0.022	0.627	0.038	0.325

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 varies because of missing information in the dependent variable. All the specifications include baseline controls, which are those included in the specification in Table 2, column 6. Standard errors clustered at the municipalities in existence in 1960 shown in parenthesis. See previous table notes for indications on the number of clusters. *** p<0.01, ** p<0.05, *p<0.1.