Decentralization of Land Governance
and Elections in Burkina Faso

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Abstract

I study politicians' responses to the decentralization of land governance in Burkina Faso. To what extent are politicians motivated by private rents versus concerns about constituent welfare? I develop a theoretical model and test its implications using municipal elections data during the experimental pilot phase of a land governance decentralization reform. I find that 0.8 additional political parties contest elections in municipalities randomly slated to receive pilot-phase local land offices, although voter turnout is lower than expected and elections do not become meaningfully more competitive. After implementation and documentation of land rights, both parties and voters behave similarly to control municipality counterparts; however, measures of local government performance (both institutional capacity and public service delivery) are weakly improved in treatment locales. From this pattern, and by examining heterogeneity in political responses according to tensions emerging from customary land rights systems, I argue that politicians are not only driven by their own private rents, but also demonstrate a policy-centric focus on constituent welfare. This speaks to a trade-off inherent in decentralization: despite potential efficiency gains and increased accountability to local citizens, more localized government could be more vulnerable to elite capture, and therefore the motivations of those elites are important.

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1 Introduction

Over the past three decades, developing countries have increasingly decentralized public services, moving government functions from capital cities and major urban centers to rural areas (Eaton et al., 2011). Providing these services closer to the site of use should allow for efficiency gains in local public goods provision (Casey, 2018; Oates, 1972), increasing providers' information about user needs (Kosec and Mogues, 2020) as well as decreasing users' transaction costs (Dahis and Szerman, 2020), even if governments are less able to solve local externalities or redistribute resources across space (Lipscomb and Mobarak, 2017).[1] Furthermore, local governments should be more accountable and responsive to citizen concerns (Casey, 2015). At the same time, however, there has been substantial concern and some evidence that politics at a local scale could suffer from capacity constraints and be more vulnerable to elite capture (Bardhan and Mookherjee, 2000; Bardhan, 2002; Faguet, 2014; Lago-Peñas et al., 2011; Ponce-Rodríguez et al., 2018; Brollo et al., 2013).[2] At a more local level, rent-seeking politicians are less constrained by opposing factions, which is particularly problematic in clientelistic systems where traditional institutions can pervade the bureaucracy (de Sardan, 2008). If, however, politicians are not only motivated by private rents (Besley, 2007; Dal Bo et al., 2013; Hanna and Wang, 2013) but instead value constituent welfare,[3] then decentralization and attendant local political control could actually be beneficial, particularly in contexts where electoral pressures can be brought to bear on elites.[4]

In this paper, I theoretically and empirically examine local political responses to the decentralization of land governance in Burkina Faso. Beyond documenting these responses, I explore the extent to which politicians are motivated by private rents versus a concern with constituent welfare. Land offices consolidate land rights which, under customary tenure, were distributed among multiple individuals (smallholder farmers, as well as traditional elites who have transfer rights) (Cotula et al., 2007), and instead allocate them to one person. The allocation of these unified rights can create conflicts: over land, certainly, but in the political realm as well. The experimental pilot phase of this land governance decentralization allows me to causally identify its political effects by comparing changes in matched treatment and control (randomly-assigned) municipalities over three elections.[5] Fortuitously, the timing of the pilot (relative to elections) allows me to distinguish political behavior in anticipation of the decentralization from the effects of implementation itself (which involved the creation of local land offices, registration of existing rights, and allocation of formal documents).[6] I also examine local government performance, in terms of institutional capacity and service delivery, after land offices are operational.

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[1] These trade-offs are not only important in the developing world, as decentralization is also a significant force in US and Western European governance. Oates (1972)' seminal work does not focus on the developing world.

[2] The impacts of local government capacity constraints, in terms of bureaucratic experience, ability to tax, and bargaining power for resources from the central government, have been shown to be detrimental to nighttime light density in Burkina Faso (Billing, 2019).

[3] I am agnostic about whether this is due to altruism or whether forward-looking politicians help citizens in order to improve electoral prospects given retrospective voting; both would have similar effects.

[4] Much as in Cruz and Keefer (2015), who show that programmatic parties have more success than clientelistic ones at implementing aid-financed projects.

[5] Causal identification has been a challenge in the study of decentralization, as policies rarely allow for experimentation at administrative-unit scales (Muralidharan and Niehaus, 2017; Blais et al., 2011).

[6] These effects are conceptually distinct, as in Brollo et al. (2013), but are often difficult to disentangle empirically.

I develop a theoretical model of local political parties and voters which distinguishes between incentives stemming from private rents to politicians and those emerging from a concern for constituent welfare. This model predicts that, in the absence of a decentralization reform, local elections see few parties contesting; more choose to enter in anticipation of land offices being created (the result of the announcement of treatment locations), as the coming land offices will provide additional government revenues, an opportunity for patronage, and, importantly, the ability to shape land rights for citizens. After implementation, when land offices have been created and policy (determining to whom newly-unified land rights will be allocated) has been set, the stream of revenues to the municipal government persists. Therefore, the model predicts that if private rents are the primary driver, party competition will continue, but if policy-setting is important, fewer parties will contest.

This model also predicts heterogeneous responses to the decentralization reform based on existing tensions in (customary) land rights in different regions, consistent with qualitative evidence. Specifically, in near-urban rural areas, there is substantial demand from urbanites outside the community to buy documented land and an inability to distinguish between multiple rights-holders. The two incentives for parties, private rents and public welfare, are both stronger in near-urban municipalities facing external demand for documented land, and therefore there should be more party entry in these regions. However, despite the importance of pastoralist land rights systems in regions of Burkina Faso, and the key role that land policy can play in clarifying overlapping rights, the experimental pilot phase did not occur in areas with substantial pastoralist populations. In near-urban areas, the post-implementation period allows me to distinguish between private rents (which remain high) and constituent welfare. The model, together with an empirical examination of heterogeneity, suggests that parties do care about constituent welfare and the role of policy in shaping it.

My empirical results from the experimental pilot phase of a land governance decentralization in Burkina Faso are consistent with the model's dual conceptualization of party incentives, and they suggest that constituent welfare is a significant driver.[7] In the election following the announcement of local land office locations, I find a causal 0.8 party increase in the number of political parties contesting local elections in treatment municipalities, as politicians want a role in setting local land policy. This effect is stronger in rural municipalities that are closer to urban centers, as predicted by the model. There are more potential resources to control in these areas (from service fees), and land policy is more important to constituents facing outside pressures on their land. After implementation, elections in treatment and control municipalities have similar numbers of contestants, despite the continued stream of revenues from land offices in treatment areas.[8] These additional party entrants induced to compete do not appear to be electorally competitive, often failing to win any council seats. However, as the model demonstrates, even uncompetitive parties

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[7]These results are consistent with those of Cruz et al. (2018b), where more political competition is seen in regions with more social fragmentation, which could improve public good provision. However, this work highlights that the social cleavages in question need to be politically viable (unlike pastoralists, as I explore in this paper), and politicians must be able to provide relevant public goods to different groups. Additionally, political contestation must be impactful: more fragmented areas do not behave differently before meaningful decentralization, unlike a world in which political patronage and access to the state was the only driver of behavior by parties.

[8]This is again particularly true for near-urban municipalities: rents will continue to be higher after implementation, suggesting that private rents are not the only driver.

may play a role in determining local policy. This improved political climate appears to persist and translate into meaningful advances in local government performance, particularly in institutional capacity, as measured by SUPERMUN scorecards after implementation.

Voters seem to respond more to the observed responses of political parties than to the underlying decentralization reform itself. This could be due to less information about planned policy changes, in addition to an observed pessimism in interpreting politician behavior. Surprisingly, despite the increased importance of local governments that will carry out land administration, voters are less likely to cast ballots in treatment municipalities in 2012 (in anticipation of treatment).[9] This may be due to poor dissemination of information about the coming land offices, as well as information costs to voting when many parties contest.[10]

This paper contributes to three literatures within political and development economics. Although this paper does not directly measure constituent welfare, the randomized control allows for precise causal identification of the effects of decentralization of government services, and I am able to empirically distinguish anticipation from treatment effects on political behavior (Brollo et al., 2013). I additionally can document causal impacts of the creation of local land offices on broader institutional capacity in government administration.

It also speaks to a literature on political motivations and concerns with elite capture, which has been of particular concern in the context of customary institutions in Sub-Saharan Africa (Hagberg, 2004; Adotey, 2019; Benjaminsen and Ba, 2009; de Sardan, 2008). Although my results are not entirely reassuring, they do suggest that electoral pressures can (somewhat) counteract local elites.[11]

Finally, this paper draws upon and expands the rich literature on land rights, particularly that on customary institutions in Sub-Saharan Africa and the interface between customary and state land institutions.[12] Although qualitative work has stressed the social nature of these land rights (and therefore their importance to many aspects of life) (Cotula et al., 2007; Alden Wily, 2011; Van Leeuwen, 2014), economists have primarily examined implications for agricultural investment (Brasselle et al., 2002; Place, 2009; Fenske, 2011; Goldstein and Udry, 2008). I shift the focus to the political realm, exploring how the distribution of land rights and tensions between rights-holders can influence governance.

In documenting political responses to the experimental decentralization of land offices and disentangling motivations for political actors, this paper has optimistic implications for policy. Despite showing that politicians behave as if they want to control local land offices, there is suggestive evidence that this is driven by a policy-centric focus on constituent welfare in addition to a desire for private rents. Therefore, political control of local governments might not be as concerning, and elite capture may not negate the benefits of efficiency and local accountability. This seems particularly

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[9]This is in contrast to Blais et al. (2011), who find increased turnout in sub-national elections as their relative importance increases.

[10]Cruz et al. (2018a) argues that although voters do care about the policy positions of parties, they may not be informed of these even if they drive candidate behavior. Lierl and Holmlund (2019), on the other hand, find that municipal voters in Burkina Faso do not respond to information about incumbent performance.

[11]This implication is related to work by Eifert et al. (2013), who document ethnic mobilization in competitive elections.

[12]Customary land rights are not the only customary institutions which the state attempts to document, as Joireman (2014) shows; importantly, she argues that this ascertainment does not necessarily make the application of customary law any less flexible.

true in cases where electoral incentives do not favor the elite, such as in near-urban areas where smallholder farmers worried about elite expropriation are numerous enough to counteract the political pressures of powerful elites. As Burkina Faso and other countries in the region continue to decentralize land governance and other public services, these findings will be relevant in designing safeguards on local elite capture.

2 Context

2.1 Land Rights in Burkina Faso

The reform studied in this paper is not only an abstract decentralization of government services, but also a land reform that aims to document and formalize customary land rights. The existing shape of customary land rights in Burkina Faso is key to understanding the value of these local land offices. Most fundamentally, rights to a given piece of land are distributed among multiple individuals in a community (Cotula et al., 2007). This makes land rights inherently social; to fully grasp them involves considering the relationships between the people involved (and their interactions in multiple realms, including the political). However, only holding partial rights does not itself make those rights less secure (Brasselle et al., 2002).[13] Ensminger, an anthropologist, states that "A common characteristic in almost all African customary systems is for use rights to be assigned at the household level, whereas transfer rights are assigned at a higher level such as the lineage, clan, or chiefdom" (Ensminger, 1997, p. 169). This is true in Burkina Faso, as primary use rights are held by many smallholder farmers, while transfer rights are generally held by local elites (including chiefs or lineage heads).[14][15]

These broad patterns of distributed rights can lead to land conflicts, particularly in areas facing higher demand for land. The ambiguity about whether use rights-holders or transfer rights-holders are the 'owners' of land can be exploited in rural areas near urban centers[16] which face a growing demand for land by outsiders[17] who do not understand the local complexities of land rights. Essen-

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[13]One implication of this security is that farmers are willing to invest in their customary land: "sufficient investment incentives tend to be provided by basic rights of use that, under normal circumstances, are guaranteed to many villagers (including migrants) by the local informal order" (Brasselle et al., 2002, p. 402).

[14]Despite these elites being few in number, they are relatively powerful and/or wealthy, which can give them an outsize political importance. Their holding transfer rights was traditionally a way to resolve distributive land pressures; for instance, when newcomers came to an area, local elites could allocate them land.

[15]Additionally, in some regions of the country outside the area of this study, pastoralists traditionally hold access rights to land, allowing them to graze their herds on crop residues after harvest and access water points in exchange for manure (Hagberg, 1998). These transient pastoralists are often both physically and socially marginalized, pushed to 'livestock corridors,' and constitute a very small share of local populations, especially as chemical fertilizers are increasingly adopted. In Sahelian regions of Burkina Faso, pastoralists dominate the population and land use systems, which may result in very different land rights and political dynamics. However, none of the pilot-phase municipalities considered in this paper are pastoralist-dominated, and I therefore do not explore these regions in detail.

[16]I will refer to these rural areas that are reasonably close to (rapidly growing) cities as 'near-urban' for concision, but it is important to note that they are predominantly rural in themselves. That is, local constituents are engaged in primarily rural ways of life. However, urban residents increasingly seek to purchase rural land near their city homes as a source of food, insurance, connection to the countryside, or for use as a vacation home. These urban residents may have extended family in other regions of the country, but seek a closer rural retreat. This also implies that urban buyers likely have little or no connection with the inhabitants of the nearby rural municipalities in which they seek to buy land.

[17]Well documented in Burkinabé media: the mayor of Loumbila, a municipality near Ouagadougou, complains "The whole world is coming to Loumbila to buy land," detailing plans to charge different fees to outsiders (201, 2016).

tially, who has the right to sell land to an outsider? Local elites, who may feel they have a legitimate claim given their traditional transfer rights, often also have greater access to these outsiders due to their education or other advantages and so may exploit this ambiguity. "There is a fine line between chiefs as (often self-declared) owners of all land in customary laws, and chiefs as trustee administrators" (Alden Wily, 2011, p. 6). Despite abundant stories of how "local elites have been able to use their position and the ambiguities of customary law to appropriate land to further their own economic and political interests" (Ubink, 2008, p. 18), especially in near-urban areas (Ubink and Quan, 2008)[18], this particular facet of how customary tenure adapts to external pressures has been underexamined by economists.[19]

Customary tenure arrangements continue to be significant in Burkina Faso despite previous legal regimes failing to recognize them, as national laws were largely ignored locally. However, in conjunction with the Millenium Challenge Corporation's (MCC) Rural Land Governance project, the regime led by Blaise Compaoré passed two laws pertaining to rural land rights in 2009[20] and 2012.[21] These recognized customary rights as legitimate, laid out plans for municipality-level land offices (known as *Services Fonciers Ruraux*, or SFRs) that would be supported by MCC in the pilot phase, and described documents (called *Attestation de Possession Foncière Rurales* or APFRs) that would fall between full title and defined use rights. These documents did provide some flexibility in documenting secondary customary rights, but by providing a singular document to a land 'owner' they inherently unified distributed rights over a given piece of land. This documentation process therefore not only affects the security of tenure (and therefore investment), but also the distribution of rights. In this paper, I explore whether local administration can appropriately handle this distribution.

2.2 Politics in Burkina Faso

The decentralization of land offices in Burkina Faso occurred in a context of one-party domination and nationwide decentralization. In contrast to the land offices, most decentralized service provision was under national direction rather than local control. Additionally, despite the multitude of political parties in elections, for much of the country's history, one party, the Congrès pour la Démocratie et le Progrès (CDP) (headed by Blaise Compaoré) has been preeminent.

Blaise Compaoré and the CDP took power in 1992 in a coup that overthrew the previous long-serving president, Thomas Sankara. The new government passed the first decentralization laws in 1993, but it was not until 2004 that authority over public goods provision and finances were transferred to local governments, and many rural 'communes' (municipalities) were created to fill these governance roles. Each municipality would be governed by a council made up of two elected representatives from each village in the municipality, along with a mayor elected by the council.

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[18]A report by IIED and FAO sounds the alarm about this power imbalance when (as seen in near-urban areas) land values are rapidly rising: "As land values rise, farmers may be forced or tempted to sell their land. Where land is still under customary chiefs, these may be tempted to sell off lands for housing and other developments, regardless of the views of those actually farming this land" (Cotula et al., 2004, cited in Cotula et al. (2007, p. 21)).

[19]There is a similar dynamic at play in China, where lineage group leaders who become village officials often expropriate land, particularly in the near-urban hinterland (Mattingly, 2016).

[20]Law 34/2009 "On Rural Land Tenure"

[21]Law 34/2012 "On Agrarian and Land Reform in Burkina Faso"

The first municipal elections were held in 2006, in which the CDP won 72% of council seats; the opposition only won a few seats. Participation nationally was around 49%, relatively high for local elections on the continent.

In November 2010, Compaoré was easily elected for a fourth term as president. However, by the 2012 joint legislative and municipal elections, a viable opposition party (the Union pour le Progrès et le Changement, UPC) had emerged. The UPC was mobilized by concerns that the CDP would amend the constitution to allow Compaoré to be reelected. Turnout was 76% nationally, "attributable to the perception that the newly established UPC would present a credible challenge to the CDP at the polls, whereas a CDP victory was viewed as a certainty in the 2007 pre-election period" (Pryce and Nascimento, 2014, p. 340). Nevertheless, the CDP won 70 of 127 legislative seats. The opposition's fears turned out to be well-founded, as in October 2014, Compaoré did attempt to amend the constitution to extend his rule, which prompted a popular uprising. The political upheaval lasted for 18 months, although in November 2014 a transitional government (backed by the military) was installed until elections could be held. The transitional government suspended municipal councils and sent 'special delegations' to fill administrative roles until new elections could be held (Lierl, 2015), although local bureaucracies, including SFRs, remained in place. November 2015 saw presidential and legislative elections, which barred allies of Compaoré from running; turnout was around 60% nationally, and former Prime Minister Roch Marc Christian Kaboré was elected president. The transitional period was finally brought to a close with municipal elections in May 2016.

In order to contest elections at a municipal level, candidates must belong to a political party, and ballots list parties rather than individual politicians. However, these party affiliations are unstable,[22] and party alliances are determined in each locality and may not reflect national alliances between parties. There is a constitutional ban on ethnic affiliations for political parties, although some have noted that at a local level, ethnic divisions or tensions often play a role in understandings of parties (Hagberg, 1998).

The municipal councils that are the focus of this analysis are also worth highlighting briefly. Decentralization efforts were ongoing nationally, giving municipal governments at least partial responsibility for primary schools, health centers, water point maintenance, and administrative services such as civil registries (Lierl and Holmlund, 2019). However, this was primarily a de-concentration of functionality, rather than a delegation of decision-making power to local levels; staff and decisions were sent from the central level to merely implement locally. Additionally, the experimental setup of the Rural Land Governance (RLG) pilot phase should guarantee that the transfer of these other responsibilities was orthogonal to treatment status, and thus should not drive the observed results.

2.3   MCC Rural Land Governance Project & Impact Evaluation

Finally, it is important to have a clear sense of the 'treatment' under consideration (a full timeline is presented in figure 2). The Millennium Challenge Corporation (MCC) signed a 5-year, $480.9

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[22]A "leader builds up power and popularity through a network of alliances and relationships rather than through a program or an ideology; this is why party affiliation can change overnight" (Hagberg et al., 2018, p. 74). Gottlieb and Kosec (2019) document party switching in Mali as being driven by political incentives.

million, compact with the government of Burkina Faso in 2009. One component of this compact was a Rural Land Governance Project, aimed to increase investment in land and rural productivity by improving land tenure security and land management. This process was designed to be locally-controlled in order to take advantage of local knowledge of land rights. However, this also implies that the consolidation of land rights for an individual would be subject to local government influence.[23]

During the first (non-experimental) phase of the project (2009-2012), MCC supported the government in drafting the two land laws described above, as well as piloted land offices in 17 municipalities. These 17 locations were chosen as priorities (although the exact criteria are unclear), and are not balanced at baseline when compared with their phase I comparison municipalities nor with the rest of the country. This period also saw national-level legal changes, so the first phase is less useful in causal identification of impacts.

In mid-2012, plans were made for the second pilot phase of the project, when an additional 30 municipalities would be brought in. These locations were chosen in 30 matched pairs, of which one would randomly be selected to receive the land office (SFR) during the pilot phase in order to conduct a rigorous impact evaluation.[24] The announcement of treatment locations was made prior to the 2012 municipal elections, almost certainly for reasons of political expediency.[25] It seems reasonable to therefore consider that in the 2012 elections, local elites in treatment municipalities had been made aware that they would in the future receive local land offices, and any responses are due to the anticipation effects of this announcement.[26]

Between the 2012 and 2016 elections, the Rural Land Governance project proceeded with implementation. This began with building and staffing rural land offices (SFRs).[27] Then, each village in the municipality created a participatory land use map, which brought the community together to demarcate overlapping rights and claims to land.[28] After mapping, landowners could request formal documentation of their rights in the form of APFRs, paying a locally-set fee for this document.

[23]Despite the emphasis on local control in *ex ante* messaging, MCC may have exerted control over the process in pilot municipalities. This could diminish the role of policy in practice, which in turn could shape the observed election response in 2016.

[24]This impact evaluation is ongoing, and focuses on impacts on tenure security and investment at a micro-level. Unlike in Briggs (2012) in Ghana, I find no strong baseline differences between treatment and control areas (nor between study areas and the rest of the country) in political outcomes, suggesting locations were not chosen to politically benefit the incumbent party.

[25]Phase II treatment locations are listed in the baseline evaluation report submitted in August 2012 and are highlighted on a public map dated November 2012 (figure 1).

[26]I have been unable to locate local news announcements of these coming land offices prior to the 2012 election, however, so it seems unlikely that a majority of voters were fully aware. Therefore, I interpret responses by political elites (including parties) as stemming from the announcement, but responses by voters (including turnout and vote choices) as being proximally caused by the behavior of political elites.

[27]Two agents were hired to staff each SFR: a mapmaker (skilled, often recruited from the city) and a communications agent (recruited locally, and generally suggested by the mayor or council members in practice). Several people involved in the process noted that the mapmakers often abandoned what was seen as boring, low-paid work in rural areas, so communications agents were trained to take over map-making responsibilities. Local politicians had significant influence in agent selection.

[28]During this period, over 60,000 stakeholders were trained on conflict resolution and land management. This mapping exercise was intended to document all existing rights (including those held by multiple people), but in reality presented an opportunity for officeholders to reallocate rights with real distributional consequences. By inviting some rights-holders and not others, for instance, the rights documented could be limited. In MCC's report as they closed out the compact in July 2014, they noted that 47 communal land use maps had been created (in 17 phase I and 30 phase II municipalities) and 47 municipal buildings (holding SFRs) had been constructed (Millenium Challenge Corporation, 2014). These buildings were purposely located near other administrative offices to facilitate a 'one-stop shop' for all necessary documentation.
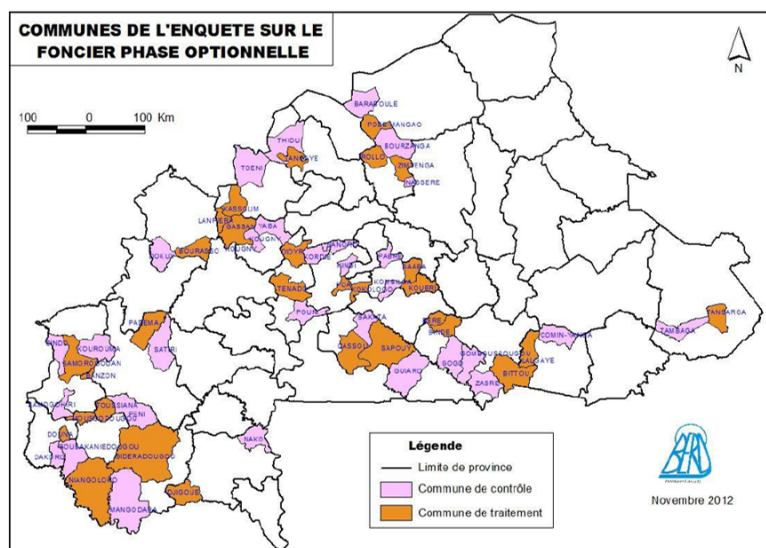
Figure 1: Map of RLG Impact Evaluation Municipalities

Although 13,447 applications for APFRs were received by mid-2014, only 2,167 had been approved by local governments, and only 403 documents had actually been distributed.[29]

The national political unrest put the delivery of documents largely on hold from 2014 until new municipal councils were elected in 2016. However, the land maps created in 2013-2014 fixed the identity of the land 'owner' who was eligible to receive an APFR; in the model I outline below, this prescribes the policy of land reform. The municipal council elected in 2016 could nevertheless expect an additional stream of revenue in treated municipalities from processing documentation, paid by residents who wanted 'second-stage' documentation beyond the registration of their rights on a land map.

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[29] "The National Municipal Association of Burkina Faso (AMBF) blames the slow implementation of new, decentralized land services on the lack of autonomy allowed to local governments to use funds transferred from the central government as they see fit, and on the reluctance of deconcentrated technical services to support local empowerment (Kaboré et al 2014)" (USAID, 2013, p. 22). In particular, the final approval of APFRs initially required action by the central ministry responsible for lands, which delayed delivery of documents.
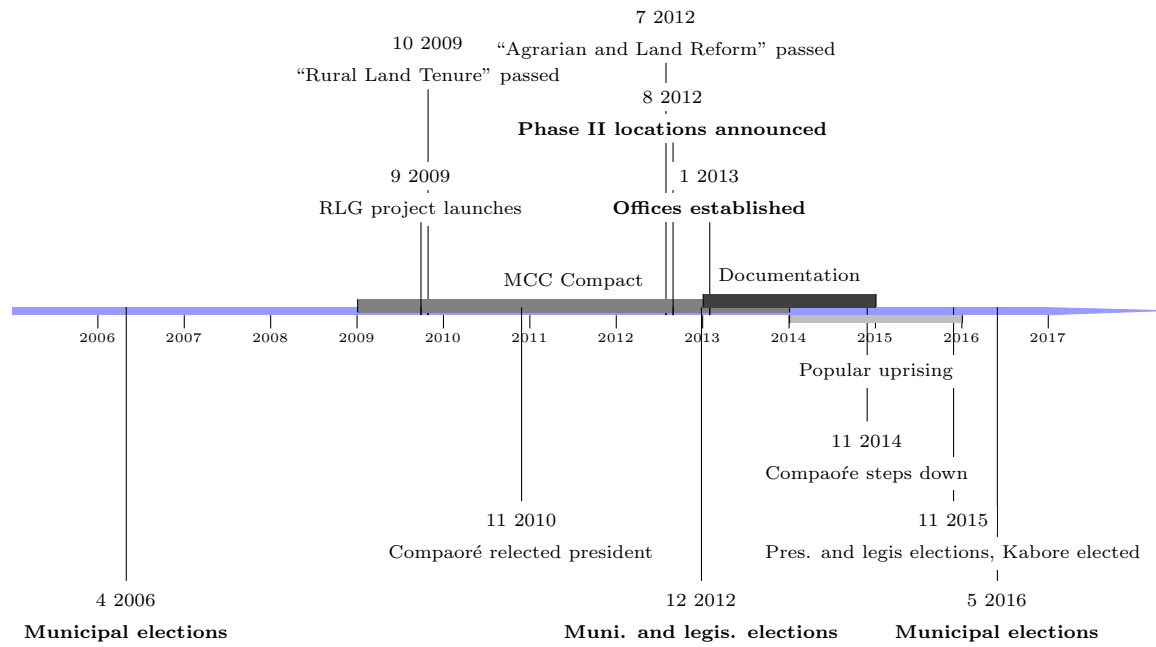
Figure 2: Politics, Land Rights, and Impact Evaluation Timeline in Burkina Faso. Observed data and treatments in bold.

3 Model

In this stylized model, I explore party entry decisions[30] in the context of a party competition model (drawing from Bardhan and Mookherjee (2010) and Bardhan and Mookherjee (2000)[31]). This model will help make sense of the political responses to the decentralization of land administration. Although there are several potential models which could capture some of the observed behavior,[32] this model incorporates the tensions inherent in land administration in Burkina Faso and thereby accounts for meaningful heterogeneity in how different areas shape political competition. More details, and a formal solution, can be found in the appendix. For clarity of intuition, I will focus on the entrance of a second party against an historically-dominant incumbent.

The model includes two possible motivations for potential political parties, and incorporates how these incentives change as land reforms are announced and implemented. The model then predicts how political behavior will change in response to these shifting incentives, and how the relative importance of the two motives can be uncovered from observed political outcomes. A potential political party will, if they win, receive private rents from being in office. Political actors also always receive utility from the well-being of different groups of constituents, which is in turn affected by the policies implemented by officeholders. Importantly, local governments may be constrained in their ability to implement their preferred policies.

Prior to the creation of local land offices, municipal governments had little ability to put their policies into practice, given the central direction and control of public service provision in Burkina Faso. The model, when parameters are set to capture this environment, shows that policy platforms have little role in shaping welfare, so potential challengers rarely contest, as their costs of entry are prohibitively high when compared with the expected value of private rents alone. The announcement that local land offices will be created in and controlled by a municipality, however, will impact both motives. The private rents of holding office will likely increase in this newly-powerful government receiving additional revenue. Importantly, these decentralized offices will be more capable of implementing policy platforms, and thereby shaping constituent welfare. Both motives for political parties are stronger, so the model predicts additional party entry regardless of motive. However, after land offices are created and the distributional policy is set, politicians can expect continued rents from existing land offices. Therefore, examining party entry behavior in post-reform elections will allow a distinguishing of motives: if private rents alone drive behavior, parties should continue to contest; if constituent welfare is also important, then parties should be less likely to run if they cannot shape policy.

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[30]à la Tavits (2006).

[31]Who, in turn, draw from a Grossman and Helpman (1996)-style model.

[32]For instance, a model of naive party entry with parties learning that they are uncompetitive would explain the reduction in party entry between 2012 and 2016, but there are still a substantial number of parties contesting the 2016 elections which win no council seats. Alternately, there could be more uninformed voters (choosing only on their individual loyalty rather than expected utility under proposed policies) in more remote areas, which leads to less party entry in those areas. However, rent-seeking parties should still try to win office in response to decentralization.

3.1 Environment

Consider a stylized village composed of several potential groups of people, with groups denoted by g (in population shares α_g) and parties denoted p. There is an incumbent political party which has historically dominated local politics and therefore faces extremely low costs of contesting elections[33]. These costs are low enough that for any non-zero probability of winning the election, this party (denoted d) always contests the election. A potential challenger can choose to create a political party c and contest local elections, although this is costly (with party-specific costs of running for office C_p).

3.1.1 Political Incentives

The benefits of holding elected office are twofold: first, there are private rents that accrue to the officeholder, E_p, which could be non-monetary, such as prestige or the ability to appoint bureaucrats in a patronage system, but are increasing in the resources controlled by the local government.[34]

Second, parties have intrinsic preferences over the interests of the classes they represent, which are important regardless of which party is in power. Whether these preferences stem from altruism or other political considerations, the model takes them as given.[35] I represent these preferences with welfare weights w_g^p on the utility $U_g(\theta\pi)$ of each group g. This utility is determined by the policy π of the officeholder in power, which in this case can be thought of as shifting the allocation of newly-unified land rights to one group or another,[36] and is assumed to be a credible commitment[37]. Utility is also determined by a parameter θ which represents the correlation between *de jure* and *de facto* rights: that is, the ability to turn the policy position π_p of a candidate for office into reality, where it is this reality that matters for constituent welfare. This captures an important distributive tension in the formalization of customary land rights in Burkina Faso. Voters' utility improves if π shifts the allocation of land rights towards them, but only insofar as that policy is enacted by θ. Therefore, if a party p wins office, their benefits of holding office are given by $E_p + \sum_g \alpha_g w_g^p U_g(\theta\pi_p)$ and if they lose office to party q, their payoff is $\sum_g \alpha_g w_g^p U_g(\theta\pi_q)$.

Politically-informed voters choose who to vote for based on their expected utilities under each party's governance and their (randomly distributed) loyalty towards the incumbent party, v_g, which may be negative.[38] Therefore, voters of group g vote for party c over the incumbent d if $U_g(\theta\pi_c) \geq U_g(\theta\pi_d) + v_g$, where π_p is the policy choice of party p.[39]

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[33]This is modeled closely on the CDP, as described above

[34]This is a standard feature of models of political contests, as in Bardhan and Mookherjee (2010).

[35]A purely altruistic politician might weight all citizens equally, with $w_g^p = 1, \forall g$, but they can also have preferences for different groups.

[36]For instance, between the individuals who hold use and transfer rights.

[37]In future work, I will relax this assumption and consider the ways that politicians can choose costly (and therefore credible) signals. However, models which incorporate credible policy commitments consider policies that are costly for politicians to implement, incentivizing reneging after being elected. By contrast, local politicians anticipating the documentation of land rights funded by the central government do not face different costs of implementing their policy platforms, so it seems reasonable that their announced policies are more credible.

[38]The literature on voter responses to campaign promises is mixed. Cruz et al. (2018a) find that voters do judge candidates based on their campaign promises and past performance, while Lierl and Holmlund (2019) find that municipal voters in Burkina Faso do not change their votes in response to positive or negative information about incumbent performance.

[39]This model could also capture ethnic voting dynamics, where the ethnicity of voters and politicians affects the

3.1.2 Solution Concept

I solve for party entry and policy choice using backwards induction: parties consider how their entry and policies will affect voter choice, and maximize their own payoffs with this in mind. Therefore, I begin with voter choices before modeling the party decisions. The order of party decisions is as follows: first, the challenger decides both whether to contest the election and what their policy, π_c, will be. Then, the incumbent party (which always contests) announces their own policy, π_d.

3.2 Pre-Reform Solutions

Before the announcement of the land administration decentralization, local governments are largely constrained to follow central government policy directives. In the model, this can be represented as $\theta = 0$: local governments are unable to put their policies into action, so policy platforms are irrelevant. Informed voters of group g, then, vote for the challenger over the incumbent if $0 \geq v_g$.

Noting once again that policy choices are irrelevant, the challenger will choose to contest the election only if the expected benefits of winning (private rents) are greater than the costs of contesting. Note that if the net average loyalty to the incumbent is positive ($\sum_g \alpha_g \overline{v_g} \geq 0$), the probability of winning office is relatively low. Therefore in many cases, the challenger will not contest the election, resulting in the uncompetitive electoral environment observed before the introduction of the land reform.

3.3 Reform Announcement Solutions

When a municipality learns that it will receive a land office in the next electoral term, the policies implemented by the next election's winner become meaningful to both voters and politicians. Land offices in Burkina Faso were designed to be locally controlled, unlike the de-concentrated municipal services which operated under direction from the central government. The decisions made during the land documentation process could matter substantially to constituent well-being. Newly-unified land rights will be given to one individual (likely from the multiple rights-holders under customary tenure), which is inherently redistributive.

If different political parties have different welfare weights for population groups, they will have different 'ideal' policies for the land reform. These diverging policy preferences will drive parties to contest elections more often in two ways, as shown formally in the appendix. First, parties would like to win office and enact their preferred policies, directly improving welfare for the constituents they care most about. Second, even if they are not elected, by announcing policies that favor an electorally-viable group they can induce the incumbent party to shift their own (credible) policy platform.[40] Essentially, in order to win votes from multiple groups, the incumbent will respond to the policy proposal of the challenger by moderating their own policy stance.

importance of loyalty.

[40]This could also function through contestants earning 'a seat at the table' in later negotiations about documenting land rights, which moderate implemented policies.

3.3.1 Heterogeneity: Near-Urban Areas

This model also captures the dynamics of the primary land tensions and documentation in Burkina Faso and predicts heterogeneity in different regions.

Near-urban areas face high demand for clearly-documented land from outsiders.[41] This allows local governments to set higher fees for documents (and expect more documents to be requested),[42] increasing the municipal revenue available to local officials as private rents.[43] Formally, this is represented by E_p increasing more in near-urban municipalities in response to the announcement of treatment, leading to more party entry in these areas. This is a relatively straightforward story of political rents increasing and a corresponding political response.

However, the model also demonstrates another mechanism by which the introduction of land offices in near-urban areas leads to a greater response by political parties: constituent welfare. Constituents may care more about land documentation policy in near-urban areas precisely because they face land pressures *from outsiders.* In an isolated rural environment, if the documents created by land offices are granted to an individual who previously did not hold primary use rights (or exclude secondary rights-holders), there are relatively few consequences: the socially-recognized land rights do not change. This can be modeled as a low θ: *de jure* rights as documented do not get translated into *de facto* reality. However, in near-urban municipalities, the risks of the documentation process become larger. Imagine that documents are granted to a secondary rights-holder who is not the primary user of the land. They then sell this land to an urbanite, who accepts the document at face value as indicating the document-holder is the appropriate person to sell the land. The urbanite is able to enforce their legal rights through better access to the formal (state) justice system. This dynamic is captured in the model as higher θ: the land documentation process has larger effects in near-urban areas than in more remote ones where implementation of a policy may be blunted by the strong social relations in which land rights continue to be embedded. This also implies that local elites who hold secondary transfer rights have more incentive to control the documentation process because if they receive land documents in their name they can sell it on to outsiders (while in rural areas there is less external demand, and elites cannot use expropriated land efficiently themselves). The higher θ in near-urban areas implies a greater weight to policy positions in determining constituent welfare, which will cause more political parties to contest elections.

I have shown, then, two mechanisms by which potential candidates in municipalities close to urban areas will respond more strongly to the creation of land offices than their counterparts further away. Both of these mechanisms stem from urban outsiders' demand for land and their inability to

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[41]Rural residents are embedded in the same social environment as their customary land rights; the individual who holds secondary (access, transfer, etc.) rights to your farm plot is your neighbor, uncle, or friend. As documented in a substantial body of qualitative evidence, this also means that bundles of rights being distributed across multiple individuals does not in itself make those rights less secure. However, an outsider to this social system will struggle to parse its property rights. The value of clearly documented rights, backed by the legal framework of the state (as opposed to the social environment), is therefore higher for outsiders to the community, particularly those seeking land for part-time use who may never become part of the community. Alternately, local residents may want documentation of their land in order to sell it to outsiders who will not buy or will pay less for undocumented land.

[42]Even if outsiders are unable to request documentation themselves, local rights-holders are willing to pay more with the expectation of passing these costs on to wealthy outside buyers.

[43]Lierl (2017) and Lierl and Holmlund (2019) are motivated in large part by embezzlement among municipal governments in Burkina Faso; Hagberg (2004) describes an expectation that "the leader will 'eat' part of the money."

navigate the nuanced social complexities of customary tenure. Despite having the same net effect, the two mechanisms are theoretically distinct; the latter goes beyond private rents to account for politicians valuing their constituent welfare. I suggest ways to disentangle these mechanisms in the results section of this paper.

3.4 Post-Reform Solutions

I also observe elections that occur after the creation of land offices, so it is instructive to see what the model predicts. Local political actors responded to the promise of local control during the decentralization reform, which was most clearly seen in the first stage of the process: creating participatory land use maps which documented existing rights (including secondary rights). After this, all that remained was to give out formal documents as requested according to the consolidated map.[44] This means that by the 2016 elections, the policy options about land were curtailed (θ decreases), although rents from controlling the land offices (including fees from processing APFRs) remained. Therefore, the number of parties contesting elections should return close to the pre-reform case.

In near-urban areas, note that outsider demand for APFRs would maintain large private rents from holding office. Therefore, if private rents were the primary driving force for politician behavior, the model would predict persistently higher political competition in treatment areas near urban centers. If, however, near-urban areas also see a drop in the number of parties contesting, that is suggestive that parties are primarily concerned with constituent welfare.[45]

4 Data

In this paper, I use several data sources to empirically examine political responses to the decentralization of land reform, matching them at the municipality-level with MCC's pilot-phase treatment status.

4.1 CENI Electoral Returns

There have been three municipal elections since decentralization reforms created municipalities as an administrative unit with a democratically-elected council. These occurred in 2006, 2012, and 2016. The *Commission Electorale Nationale Indépendante* (Independent National Electoral Commission, French acronym CENI) publicly reports certified results of all elections, including these municipal elections. These electoral returns specify, at the municipality-level, the number of registered voters, the number of votes cast, as well as the performance of each party contesting the election (both in the number of votes and seats won). They do not include the party affiliation of the mayor indirectly elected by the council, nor any information on candidates or winners from party lists (nor the policy platforms of the contesting parties).

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[44]Few APFR documents had been given out by 2016.

[45]It is not conclusive, as new political entrants could also be learning about their electoral viability; if they are driven by private rents, but learn they are unlikely to win office and be able to access these rents, politicians may be better off joining the ruling party rather than contesting independently.

CENI currently reports online the electoral results from the 2015 presidential election, 2015 legislative elections (reports at the province level), and 2016 municipal elections (reports at the municipality and village levels) (Commission Electorale Nationale Independente du Burkina Faso, 2016). However, the Internet Archive contains municipality-level results for both the 2006 and 2012 municipal elections (Commission Electorale Nationale Independente du Burkina Faso, 2006).[46]

4.2 SUPERMUN Municipal Scorecards

I am also able to see whether and how politicians actually behave in constituent-focused ways, using data from the Municipal Performance Monitoring (*Suivi de la Performance Municipale*, or SUPERMUN) survey (REGLAB (Recherche experimentale sur la gouvernance locale au Burkina Faso), 2021). This project tracks both measures of institutional capacity and service delivery for municipal government responsibilities in all 349 municipalities (excluding Ouagadougou and Bobo-Dioulasso) (201, 2019). This collaborative effort by different government and non-governmental stakeholders was developed in part to help municipal governments improve their performance, as well as improve accountability from local and national actors.

SUPERMUN began collecting data in 2013 in six regions; in 2017, it was expanded to cover the whole country and we use data from 2017. The individual measures fall into two broad categories: institutional capacity (7 indicators) and public service delivery (9 indicators), each of which is additionally collected into an index. Individual measures were selected if they fell under the mandate of municipal governments, mattered for the quality of life of citizens, were measurable in objective quantitative terms, easily collected, and comparable between municipalities in diverse regions and across time. Measures of institutional capacity include staffing of 8 key positions within the municipality (General Secretary, Registrar, Accountant, Revenue Manager, Materials Agent, Statistical Agent, Technical Agent, and Land Officer[47]), attendance rate at municipal council meetings, the number (out of 4 mandated) of ordinary municipal council meetings held, the number of concertation meetings (to reconcile opposing factions) held, the tax revenue collected as a percentage of the forecast, the per capita tax revenue, and the share of the annual procurement plan implemented. Service delivery components that fall within the purview of municipal governments and are measured by SUPERMUN include the proportion of schools with a functioning well, the average delay in the delivery of school supplies, the proportion of schools with enough latrines, the primary school completion rate, the proportion of infants under 12 months vaccinated, the proportion of health centers that had not had a gas stockout, the proportion of assisted deliveries, the ratio of birth certificates to births, and the proportion of the population with access to a functioning improved water source.

4.3 Other Data

I use several other data sources to construct covariates and secondary outcomes, including measures of heterogeneity in existing land rights. Geo-referenced data were accessed through the William

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[46]I accessed 2012 results directly from the CENI website, but these results have since been removed (Commission Electorale Nationale Independente du Burkina Faso, 2012).

[47]Although this position should be filled in all municipalities, the SFR agents hired through pilot-phase implementation are likely counted for this role.

Variable	(1) Phase 2 treat Mean/SE	(2) Phase 2 control Mean/SE	(3) Not in study Mean/SE	Difference (1)-(2)	(1)-(3)	(2)-(3)
A: Municipality-Level Variables						
Seats Available	44.633 (4.008)	48.103 (5.194)	49.410 (1.992)	-3.470	-4.776	-1.306
Registered Voters	8658.100 (750.101)	8225.655 (706.072)	10950.218 (863.770)	432.445	-2292.118	-2724.563
Voter turnout rate	0.496 (0.019)	0.482 (0.018)	0.503 (0.006)	0.014	-0.007	-0.021
Parties Contesting	4.200 (0.357)	3.586 (0.279)	4.857 (0.318)	0.614	-0.657	-1.271
Effective # Parties (votes)	2.163 (0.108)	2.158 (0.102)	2.407 (0.087)	0.004	-0.244	-0.248
Time to major cities (min)	227.887 (17.448)	240.011 (21.190)	260.105 (7.979)	-12.124	-32.219	-20.094
Pastoral Ethnicity share	0.054 (0.009)	0.053 (0.014)	0.111 (0.012)	0.001	-0.057	-0.058
N	30	29	266			
Clusters	5	3	12			

Notes: The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level. For CENI Data, standard errors are clustered at the experimental-pair level, with all non-experimental municipalities in one cluster.

Table 1: Balance at Baseline

and Mary AidData database, including mean travel time to urban centers, population estimates,[48] conflict events, and land use (Goodman et al., 2019).

4.4 Balance at Baseline

Although the experimental setup of the pilot phase should guarantee (in expectation) balance between treatment and control municipalities, it is important to examine outcomes of interest at baseline. I additionally compare pilot-phase municipalities to the country as a whole to get a sense of how generalizable the findings may be (despite the purposeful selection of study locations). Table 1 shows that on most electoral measures, treatment and control municipalities look statistically similar to each other as well as to areas not included in the study. However, pilot-phase municipalities contain fewer pastoralists than the country as a whole.

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[48]Note that these are for the entire population, not only adults; I use this to compute the percentage of people who are registered to vote, which differs slightly from the standard voter registration rate (the percentage of eligible voters who are registered).

5 Empirical Strategy

Because municipal elections in Burkina Faso occurred in conjunction with the pilot phase of the Rural Land Governance Compact, I can use an empirical strategy that stems from the intuition of a difference in differences, although the randomized assignment of treatment allows for causal identification. By comparing changes in treatment municipalities to changes in control municipalities over the same period of time, any differences can be attributed to the randomly-assigned treatment. Any time-invariant, municipality-specific differences will be differenced out over the time dimension,[49] and any shocks common to all municipalities will be controlled for.[50]

This empirical strategy relies on the assumption of parallel trends: in the absence of treatment, treated units would follow the same trend in outcomes as untreated units. Although I cannot directly test this assumption, it seems highly plausible in a randomized context (where in expectation treatment and control groups are identical). As additional support, I can check whether variables that should not be influenced by the creation of land offices have parallel trends over the period in question. For example, I test if the number of council seats available for election, determined by a formula,[51] seems to follow a common trend, as it appears to in figure 3. A variety of other placebo measures are discussed in the appendix, and the results do not give cause for concern about differential trends in the municipalities under consideration.[52]
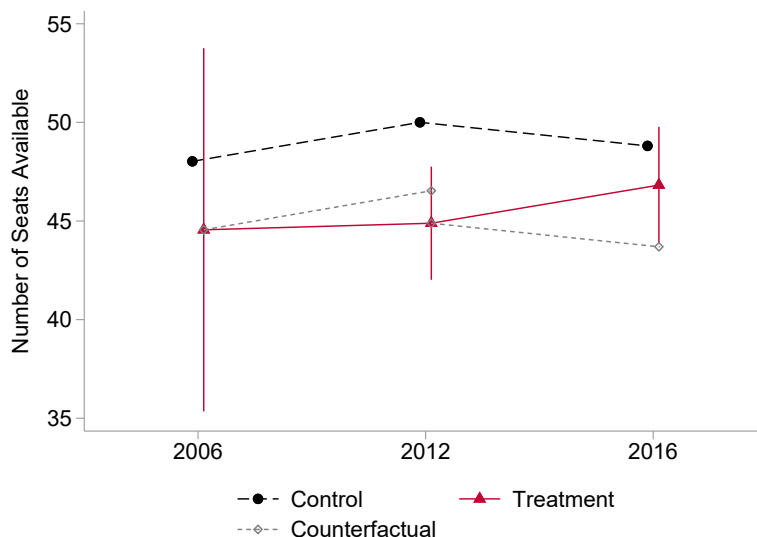
Figure 3: Parallel trends between treatment and control in seats available

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[49]Although in expectation, treatment and control groups should be identical at baseline, in small samples there may be some differences.

[50]ANCOVA can improve power over difference-in-differences in cases with low autocorrelation in outcomes (McKenzie, 2012); however, the autocorrelation in the number of parties contesting in non-experimental municipalities is 0.73, so this is less of a concern.

[51]Two seats per village in the municipality, supplemented proportionally by village population if there are fewer than 10 villages.

[52]Note that as local elections only began in 2006, I cannot test for pre-trends on electoral outcomes.

Although I observe municipalities voting in 3 elections, all treated units receive 'treatments' at the same time: first, the announcement that land offices will be created in these municipalities, immediately before the 2012 election, and second, the actual creation of land offices and associated activities from 2012-2014, prior to the 2016 elections. The main coefficients of interest in regression tables will be on the interaction of a municipality's treatment status with 2012 and/or 2016 year dummies. Equation (1) is the estimating equation. It is important to note that observations from 2016 keep the 2012 dummy 'turned on', so coefficients should be interpreted additively. That is, β_3 represents the anticipation effect of the announcement of treatment, while β_5 represents the additional impacts of implementation.[53] This intuitively matches the treatment: the effects seen in 2016 are of the marginal effect of implementation, above and beyond the announcement and anticipation of treatment.

$$y_{mpt} = \alpha_p + \beta_1 * Treat_m + \beta_2 * 2012_t + \beta_3 * Treat_m * 2012_t + \beta_4 * 2016_t + \beta_5 * Treat_m * 2016_t + \epsilon_{mpt}$$

$$(1)$$

For most outcomes, I report three main specifications. All restrict the sample to Phase II municipalities (30 treatment and 29 control),[54] with the second and third clustering standard errors at the municipality-pair level.[55] This level of clustering is shown by de Chaisemartin and Ramirez-Cuellar (2019) to be the appropriate one in matched-pair experimental settings such as this one. In the third specification, I also include pair fixed effects, which control for regional heterogeneity or other pair-specific factors.[56]

6   Results

Turning to the results of my analysis, I first consider responses by politically sophisticated actors who have the potential to control local governments. I then turn to voters, who may be responding more to the behavior of political parties rather than the underlying decentralization. For each outcome, I begin by showing the main experimental result of the difference-in-difference specification. I follow by exploring heterogeneity along informative dimensions, such as near-urban areas.

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[53]If political responses strengthened after implementation, when revenue began to flow into municipalities, then β_5 would be positive; if they weakened due to the diminished role of policy after implementation, then β_5 would be negative.

[54]One control municipality is paired with two treatment municipalities in the original impact evaluation design.

[55]The first specification computes traditional (non-robust) standard errors; however, results are qualitatively similar when using the HC3 approach to computing robust standard errors, appropriate for small-N situations.

[56]I have also conducted randomization inference tests, which are particularly important for small clustered samples such as this one. Reassuringly, results are qualitatively similar in significance, particularly for the primary treatment effects (heterogeneous treatment effects for near-urban municipalities have RI p-values closer to .12, which is unsurprising given the small number of near-urban clusters) and are robust to tests of joint significance. These results are available on request.
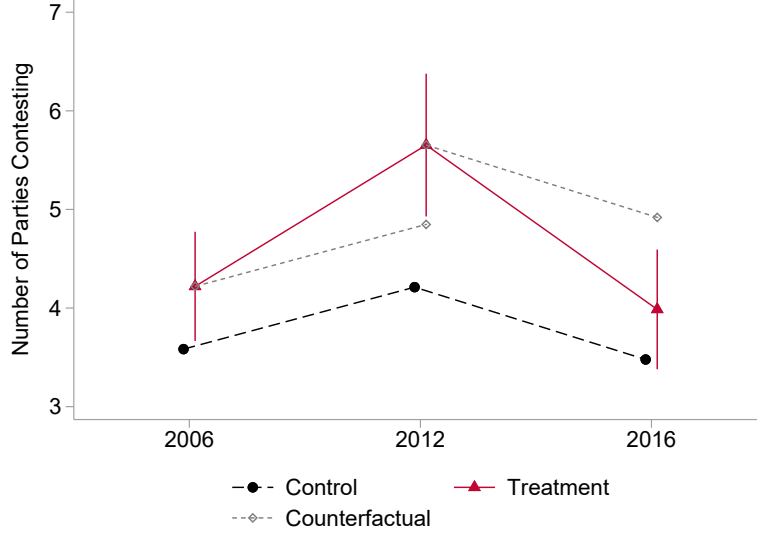
Figure 4: Parties enter when treatment is announced in 2012

6.1 Party Responses

The primary observable outcome of the model is the number of political parties that contest the election in a given municipality. As the model predicted, figure 4 and table 2 show a substantial (and statistically significant at the 10% level) increase in the number of parties contesting the 2012 election in treatment municipalities. 2012 was an historically competitive election nationwide with more parties contesting everywhere; nevertheless, there is an even larger increase (an additional ~ 0.8 parties) in treatment municipalities. This result is consistent with political actors observing the announcement of land office locations which would be subject to local political control. As shown in the model, the potential to improve constituent welfare through land policy in addition to private rents for politicians makes it worthwhile for more parties to contest these local elections.

However, by the 2016 elections, the number of parties contesting had fallen everywhere in comparison with 2012, with a greater decrease in treatment municipalities bringing their numbers back into line with control areas. This is an important result, as land registration was ongoing in the municipal offices in 2016. It seems reasonable that holding office would continue to be valuable, particularly in terms of local revenue from creating documents. However, the first stage of the decentralization (creation of a participatory land use map) attempted to resolve the actual rights that would be documented, unifying multiple bundles for the individual socially recognized as holding primary use rights. This means that party platforms for policies that would tilt the unification of rights toward one group or another were already implemented and somewhat fixed by the 2016 elections.

	(1)	(2)	(3)
VARIABLES	Parties Contesting	Parties Contesting	Parties Contesting
Treatment	0.614	0.633*	0.636*
	(0.441)	(0.337)	(0.337)
2012	0.664	0.635*	0.629*
	(0.448)	(0.347)	(0.347)
Treatment*2012	0.770	0.798*	0.805*
	(0.626)	(0.441)	(0.440)
2016	-0.750*	-0.737***	-0.734***
	(0.452)	(0.247)	(0.246)
Treatment*2016	-0.917	-0.930**	-0.933**
	(0.629)	(0.371)	(0.369)
Constant	3.586***	3.586***	3.583***
	(0.314)	(0.283)	(0.219)
Observations	175	175	175
R-squared	0.154		0.281
Pair FE	No	No	Yes
Cluster SE	None	Pair	Pair
Number of comp		29	29

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Data source: CENI Electoral Returns

Table 2: Political parties contest municipal elections when treatment is announced

6.1.1 Heterogeneity

As explored in the theoretical model, the heterogeneity of responses to the land reform in regions with different land rights contexts is informative. Municipalities near urban centers should see a larger increase in the number of parties contesting the 2012 elections. This could be due to both higher private rents for officeholders (from the higher willingness to pay for APFR documents by outsiders) and the additional impact of land policy choices on constituent welfare.[57] Indeed, in figure 5, near-urban treatment municipalities see a spike of party entrants in 2012 when compared with their more remote counterparts.

Interestingly, the model predicted that if private rents were the primary driver of party behavior, then near-urban treated municipalities should remain valuable electoral prizes in the 2016 election, as winners could expect a continued stream of revenue from ongoing APFR fees. Conversely, the role of policy positions in shaping constituent welfare would be muted after the initial land mapping has occurred. I explore this heterogeneity empirically by interacting treatment effects over time with a dummy for municipalities fewer than 2 hours travel from urban areas.[58] Figure 5 and table 3 show that near-urban treatment municipalities have a large (2.5 fewer parties than in the 2012 election) and statistically significant (at the 1% level) decrease in the number of parties contesting between 2012 and 2016. This brings the number of parties close to their near-urban control counterparts (as well as to levels seen in more remote areas). Although not conclusive, this provides suggestive evidence that parties are indeed concerned with constituent welfare. This is encouraging: despite land offices being under local political control, local politicians may not be primarily concerned with their own private gains.[59]

6.1.2 Electoral Competitiveness

The previous results show that additional parties contest elections in response to the announcement of treatment. Are these parties electorally competitive? In a system like Burkina Faso's, historically dominated by one-party rule, it is important to understand if a decentralization reform presents voters with a greater choice of viable parties. However, Tavits (2008) argues that the entry of even uncompetitive parties can shape the political environment. In my model, this can be concretely seen: even parties that do not win office themselves are able to shift the policy platforms of other (more viable) parties, and thereby affect welfare. Across multiple measures of electoral competitiveness suggested by the literature, I find no evidence that treatment municipalities become more politically competitive, as shown in table 4.

The first measure commonly used is the effective number of parties (Kelly, 2020; Golosov, 2016; Tavits, 2008; Kuenzi and Lambright, 2007; Shaukat, 2019).[60] The effective number of parties can

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[57]Recall that political parties contest the election in order to implement their own policies and shift the policy platforms of their opponents, although I do not observe the actual platforms announced by parties.

[58]This represents a rough estimate of how far into the rural surroundings land speculators and urban residents are willing to travel regularly, although results are robust to various distances.

[59]It could be concerning that, in the absence of treatment, urban areas face different secular pressures that change the political environment totally apart from the land office decentralization. However, appendix figure 14 shows that in municipalities not involved in the experimental pilot phase, the trends over time are remarkably similar despite more parties contesting in near-urban areas.

[60]This is constructed in a similar manner to measures of market competition such as Herfindahl-Hirschman indices.
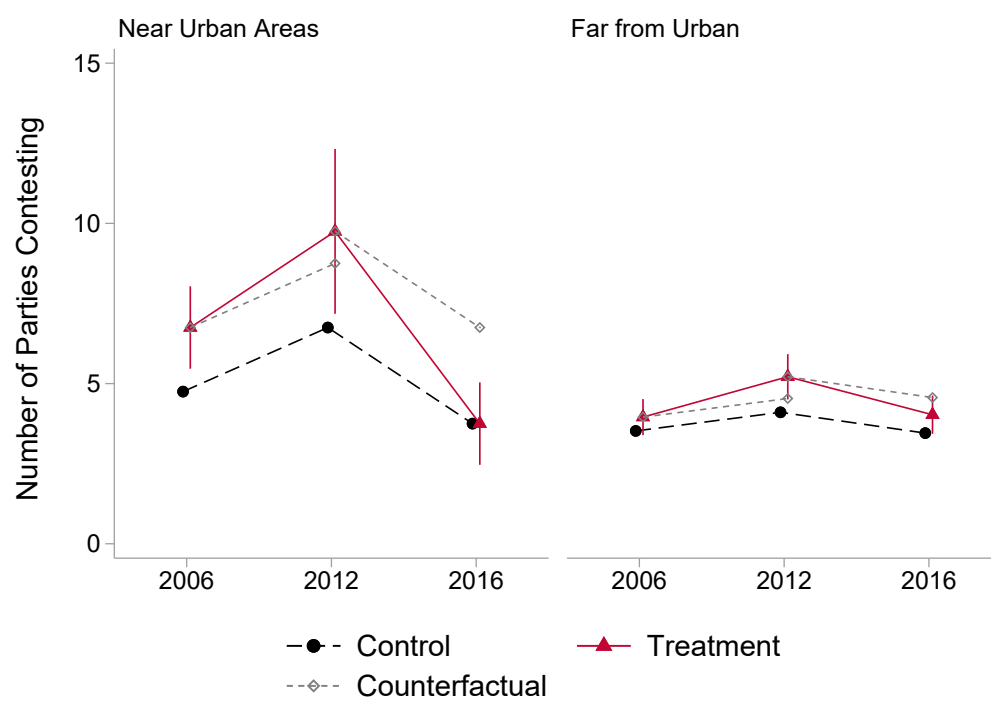
Figure 5: Responses are much stronger in municipalities near urban areas

VARIABLES	(1) Parties Contesting	(2) Parties Contesting	(3) Parties Contesting
Treatment	0.317	0.404	0.431
	(0.418)	(0.348)	(0.348)
Near-Urban	0.429	0.783*	0.671
	(1.576)	(0.471)	(0.512)
Treatment*Near Urban	2.683	1.737**	1.569**
	(1.836)	(0.690)	(0.587)
2012	0.614	0.588	0.581
	(0.418)	(0.363)	(0.362)
Treatment*2012	0.646	0.671	0.678
	(0.593)	(0.437)	(0.435)
2012*Near Urban	1.386	1.412***	1.419***
	(2.229)	(0.363)	(0.362)
Treatment*2012*Near-Urban	0.354	0.329	0.322
	(2.597)	(1.020)	(1.020)
2016	-0.667	-0.653***	-0.649**
	(0.421)	(0.245)	(0.244)
Treatment*2016	-0.519	-0.532	-0.536
	(0.596)	(0.370)	(0.368)
2016*Near Urban	-2.333	-2.347***	-2.351***
	(2.230)	(0.245)	(0.244)
Treatment*2016*Near Urban	-2.481	-2.468***	-2.464***
	(2.598)	(0.564)	(0.563)
Constant	3.571***	3.559***	3.561***
	(0.293)	(0.297)	(0.243)
Observations	175	175	175
R-squared	0.330		0.370
Pair FE	No	No	Yes
Cluster SE	None	Pair	Pair
Number of comp		29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Data source: CENI Electoral Returns & AidData

Table 3: Weaker responses in municipalities far from urban areas

be computed either using the number of votes or seats won, each of which has slightly different interpretations. The former measures how competitive parties are in winning voters, while the latter combines this with structural factors that determine how votes are translated into seats.[61] Results for the Golosov effective number of parties are presented in columns (1) (computed using vote shares) and (2) (computed using seat shares) of table 4. In column (3), I present results for the number of parties that fail to win any council seats (possible in multi-seat elections such as these); this attempts to capture the model's expected probability that a potential party entrant wins on the extensive margin. Other measures are also presented in appendix table A13. Regardless of the measure used, there are not significant differences between treatment and control municipalities, and the magnitudes are also relatively small. Therefore, although more parties compete in treatment municipalities in 2012, they do not seem to make the elections meaningfully more competitive.

How should this spike in non-viable parties be interpreted? Although it is possible that political entrepreneurs are learning about their electoral potential over time, it is unclear why this would happen differentially in treatment and control areas. The model also shows that the strategic policy responses of (dominant) incumbents may be driving these results. First, a party that proposes an electorally-viable policy (such as one advocating for shifting unified land rights to many individuals instead of a few elites) may see the incumbent shift their own policy enough to attract the majority of voters. Therefore, a somewhat naive party could be 'scooped' by the incumbent's platform response. However, more sophisticated challengers could contest the election precisely to induce this policy shift, with little expectation of actually winning office (and the attendant private rents) themselves.

6.1.3 Rent-seeking behavior & Learning

Despite some suggestive evidence that concern for constituent welfare is driving political party behavior, it is instructive to examine private rent-seeking behavior in more detail. I have argued that the actions of electorally non-viable parties are unlikely to be driven by private rents which can only be realized if the party wins office. There is one party, however, that I (and local politicians) can identify as electorally viable: the CDP. This nationally dominant party, aligned with the president, had access to a deep reserve of political resources that made contesting local elections relatively easy. This was true to such an extent in the 2006 and 2012 elections that I modeled the 'incumbent' party on the CDP: they contested in every single municipality nationwide in these elections, and won a majority of seats (and therefore the mayoralty) in 87% of these first two elections. After the national political turnover between 2014-2015, however, the CDP was no longer as dominant, having lost its intimate access to the state. This functionally increased the costs for any local branch of the CDP to contest municipal elections in 2016. However, they did remain electorally viable, in part due to voters' knowledge about CDP performance locally while new parties represented a complete unknown (Lierl and Holmlund, 2019). Figure 6 shows that although the CDP ran in fewer municipalities in 2016, they were more likely to contest in municipalities that had received land offices. It seems

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The classic measure of the effective number of parties was proposed by Laakso & Taagepera in 1979, and is equivalent to an inverse Simpson index of diversity.

[61]I use Golosov (2010)'s variation on this class of measures which performs better in highly fragmented or highly concentrated party systems. This is defined as $N = \sum_{i=1}^{n} \frac{p_i}{p_i + p_1^2 - p_i^2}$, where n is the number of parties with at least one vote, p_i is a given party's proportion of all votes (seats) won, and p_1 is the largest party's vote (seat) share.

VARIABLES	(1) Effective # Parties (Votes)	(2) Effective # Parties (Seats)	(3) Parties Winning No Seats
Treatment	-0.00222	-0.0631	0.468
	(0.106)	(0.0931)	(0.333)
2012	0.282***	0.133	0.248
	(0.0979)	(0.0892)	(0.316)
Treatment*2012	0.152	-0.0103	0.318
	(0.117)	(0.0915)	(0.423)
2016	0.00726	0.104	-0.906***
	(0.111)	(0.109)	(0.237)
Treatment*2016	0.124	0.235	-0.727**
	(0.153)	(0.143)	(0.329)
Constant	1.623***	1.408***	1.208***
	(0.0645)	(0.0605)	(0.207)
Observations	175	175	175
R-squared	0.221	0.169	0.245
Number of comp	29	29	29
Pair FE	Yes	Yes	Yes
Cluster SE	Pair	Pair	Pair

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Data source: CENI Electoral Returns

Table 4: Electoral competitiveness does not seem to increase in treatment municipalities
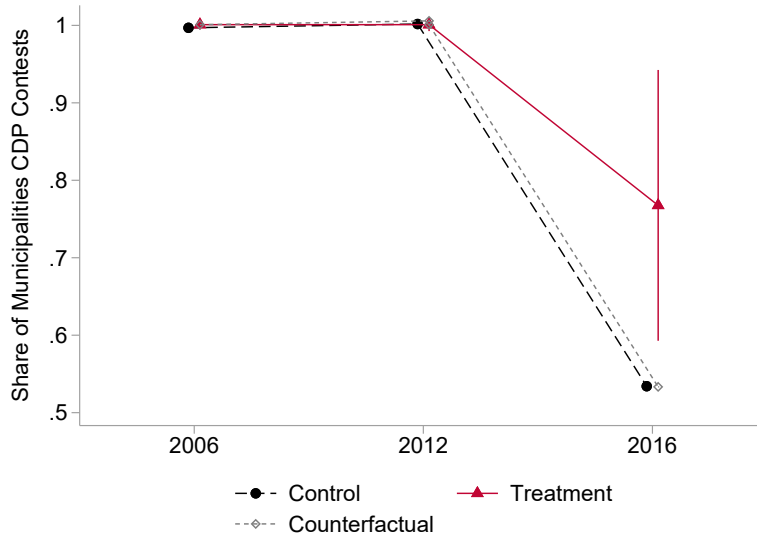
Figure 6: CDP is more likely to contest in treatment municipalities, post-transition

plausible that these municipalities presented an opportunity for larger revenues (and therefore rents for the taking), making them more attractive as the costs of contesting rose. The CDP, knowing that they could potentially win office, was motivated by these rents while smaller parties may not have been.

I also explore whether political actors may be learning from other jurisdictions, given the experimental setup of the decentralization. Is the lack of significant differences in 2016 between treatment and control areas driven by control municipalities observing their treated neighbors, anticipating their own treatment, and changing their behavior accordingly?[62] If so, this could indicate private rents, which likely continue after 2016, do remain important in party decisions. However, in table A12, I find some suggestive evidence of experimental spillovers to control municipalities in 2016, although this effect is not driven by those municipalities which will in future receive land offices through other donor projects. Therefore, the statistical similarity in party competition in 2016 does not rule out the continuing role of private rents in political behavior, although the divergence in 2012 is quantitatively larger.

6.2 Voter Responses and Welfare

I have shown that politicians respond to the decentralization of land offices and have argued that they are motivated in part by a concern with constituent welfare. These constituents, then, should also be concerned with the outcomes of these elections, as they determine policies that will have real welfare effects. However, the announcement of coming land offices was not extremely well-

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[62]Note that although the coefficient on Treatment*2016 is significant in my preferred specifications, this is because the dummy for 2012 stays 'on.' This coefficient therefore indicates a return in treatment municipalities to control-group levels from their peak in 2012.

publicized. Voters may therefore be uninformed about the underlying decentralization reform, and respond instead to the more proximal (and observable) party behavior.

Although the model did not specifically address whether constituents vote, it could easily be extended to do so. The model would intuitively predict higher voter turnout in municipalities voting for who will control the land office, and perhaps more votes for challenger parties. These predicted responses by voters could be attenuated by the difficulty of learning about local policy platforms, particularly in a multiparty environment. Even if voters do not respond *ex ante* to the politics of land reform, there may still be *ex post* effects on their welfare.[63] An important caveat is that although treatment locations were announced prior to the 2012 election, this information may not have been broadly known among the electorate.[64] Therefore, voters may be responding more to the proximal observed behavior of political elites rather than the underlying announcement of land offices.

It is difficult to recover local parties' policy platforms to test if voters respond in accordance with the model.[65] However, if I modeled the extensive margin decision for a constituent to vote (excluded from the current model for clarity), it would likely predict that voters are more invested in local elections when they will determine land policy than in cases where local governments merely carry out central directives. Voters are concerned not only with the capacity of local politicians to provide public goods, but also distributional implications of who will receive public goods (such as documented land). Therefore, voter turnout should increase in treatment municipalities provided that voters know about coming land offices. Puzzlingly, there is actually a smaller increase in voter turnout in treatment municipalities in 2012, as seen in figure 7 and column (1) of table 5. I explore several potential explanations for this unexpected result.

First, note that the 2012 elections saw an enormous surge in voter turnout in all areas as municipal elections were concurrent with national legislative elections (which generally have higher turnout). The 2012 legislative election was genuinely competitive, with what was seen as a viable opposition to the continued dominance of Compaoré and the CDP.[66] However, this increase from approximately 48% turnout to 80% was significantly (at the 5% level) smaller (by four percentage points)[67] in treatment municipalities.

Voters may be responding primarily to the behavior of political parties, however, rather than to the underlying announcement of future land offices. Despite the announcement of treatment

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[63]Intriguingly, in Prindex survey data on perceptions of tenure security, individuals *with* formal documents in Burkina Faso report higher levels of tenure *insecurity* than those without any documentation. In the geolcated survey data, individuals in near-urban municipalities are more both likely to have documents and to be tenure-insecure. The aggregate relationship seems to be driven by those in near-urban municipalities, who have preventatively gotten documents in response to ongoing land pressures.

[64]I have been unable to find local news reporting on coming land offices prior to the 2012 elections.

[65]It is also impossible to see individual vote choices in order to test if different classes of voters favor parties based on their policy affiliation.

[66]It may also be that the simultaneous municipal and legislative elections actually depressed turnout in treatment municipalities: if the 2012 election was perceived as a national election, then increasing the relative importance of local governments should reduce turnout in national elections (Blais et al., 2011). However, voter attitudes toward the national assembly do not seem systematically different between treatment and control municipalities, as seen in responses to the Afrobarometer survey. Unfortunately, legislative elections were conducted at the province level, so it is impossible to determine differences in voter turnout for these legislative elections between treatment and control municipalities.

[67]This is a meaningful difference compared to results elsewhere in the literature; get out the vote experiments in the US are able to increase turnout by 5 percentage points (Green et al., 2013).

locations in mid-2012, this information was not circulated broadly, and it seems unlikely that the average voter in rural districts would have heard about land offices or fully processed what they would mean for voters' land rights. Instead, voters may simply observe more parties contesting the election, which (in column (2) of table 5) is negatively associated with voter turnout nationally. In some treatment municipalities, the 2012 election cycle saw more than 10 parties contesting local elections, which could potentially overwhelm potential voters wanting to make an informed choice.[68] In column (3), I re-run the difference-in-differences specification, controlling for the number of parties in a given election, and find that the treatment effect depressing turnout in treatment municipalities in 2012 holds, indicating that the number of parties contesting is not the only factor at play.

Another way the behavior of political parties in response to decentralized land offices may be depressing turnout is through policy responses. If the entry of new parties induced incumbents to shift their policy platforms enough to satisfy voters, informed voters may not see enough difference between the incumbent and challenging parties to justify the costs of voting. This is difficult to test empirically, as I cannot recover the policy proposals from these local elections.

Finally, in column (4) of table 5, I test whether the drop in voter turnout is the result of higher voter registration in treatment municipalities. Suppose that new party entrants register additional marginal voters who then do not vote come election day. This would increase the denominator of the turnout rate, depressing measured turnout even if no fewer voters are going to the polls. When I calculate the share of the total population[69] registered to vote in each municipality for each election, I find no significant differences between treatment and control municipalities over time.

Despite the theoretical importance of local land offices for constituent welfare, the political responses of voters are somewhat puzzling. In the appendix, I look at citizens' own responses to questions about political engagement using the Afrobarometer survey.[70] Broadly, in 2012 there appears to be somewhat higher perceptions of corruption of government officials and municipality council members in treatment municipalities; by 2015, levels are similar between treatment and control areas.

6.3 Local Government Performance

In this paper, I have argued that local politicians are motivated, at least in part, by a concern for constituent welfare. If this is true, those in office should, in fact, attempt to improve the lives of their constituents. Recognizing that there are real capacity constraints that may prevent officeholders from improving public service delivery, it is difficult to know whether poor public services result from low structural capacity or private rent-seeking by officeholders. However, thinking of the creation of SFR offices during the experimental pilot phase as an exogenous injection of fiscal resources and (perhaps) institutional capacity, I can examine whether there are improvements in local government

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[68]Ballots in Burkina Faso only list party names and symbols; in control municipalities in 2012, most voters are faced with either 3, 4, or 5 parties, while in treatment municipalities, the average municipality has 5.6 parties contesting, with as many as 10 parties on the ballot. Therefore, one could imagine that the costs of learning about the parties and deciding how to vote may be much higher for citizens in treatment municipalities, leading some to stay home.

[69]Note this is not eligible voters, but the whole population, estimated by AidData.

[70]Although each survey round is nationally representative, it does not survey respondents in every municipality, and therefore there is not a balanced panel of study municipalities.
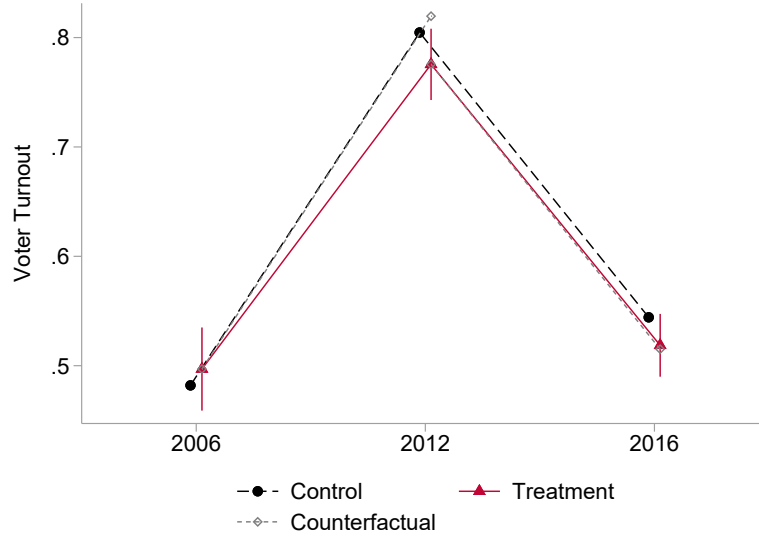
Figure 7: Voter turnout increases less in treatment communes

VARIABLES	(1) Voter Turnout	(2) Voter Turnout	(3) Voter Turnout	(4) Voter Registration Rate
Treatment	0.0149		0.0169	-0.00462
	(0.0231)		(0.0237)	(0.0169)
2012	0.323***	0.289***	0.325***	-0.0263**
	(0.0165)	(0.00631)	(0.0162)	(0.0121)
Treatment*2012	-0.0441**		-0.0416**	0.0156
	(0.0198)		(0.0198)	(0.0140)
2016	-0.260***	-0.258***	-0.263***	0.0300***
	(0.0152)	(0.00632)	(0.0153)	(0.00499)
Treatment*2016	0.00356		0.000675	-0.00229
	(0.0175)		(0.0163)	(0.00535)
Number Parties		-0.00685***	-0.00309	
		(0.000673)	(0.00425)	
Constant	0.482***	0.534***	0.493***	0.277***
	(0.0129)	(0.00548)	(0.0184)	(0.0126)
Observations	175	1,089	175	175
R-squared	0.817	0.701	0.818	0.057
Number of comp	29		29	29
Pair FE	Yes	No	Yes	Yes
Cluster SE	Pair	Pair	Pair	Pair

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Data source: CENI Electoral Returns

Table 5: Voter turnout decreases with more parties and in response to the announcement of treatment

30

performance in experimentally treated municipalities.

To test this, I use data from the SUPERMUN survey, which includes measures of institutional capacity and service delivery for all municipalities in Burkina Faso in 2017 (REGLAB (Recherche experimentale sur la gouvernance locale au Burkina Faso), 2021). Unfortunately, the cross-sectional nature of this data means that I cannot compare municipalities at baseline, but can explore differences between randomly-assigned treatment and control municipalities after they have received land offices, demarcation has been completed, and second-stage documentation is ongoing (and therefore resources are flowing).

Although I do not find statistically significant differences between treatment and control municipalities on most measures of local government performance, the patterns of differences and exploratory analyses of component measures are suggestive that the additional resources land offices bring in are being used by politicians for improving their local governments. In particular, municipalities hire additional civil service staff and hold more council meetings, and there are positive but insignificant effects on an index of institutional capacity (which is driven by and significant in near-urban municipalities). Public service delivery is similarly insignificant broadly, although statistically significantly improved in near-urban areas which I argued have a larger influx of resources due to the SFR offices meeting local demand for documented land. This is unlikely to be entirely due to the supervisory presence of MCC in treatment municipalities during the pilot phase improving capacity: MCC project staff were narrowly focused on land office operations, and the results I find are more consistent with a revenue-driven story of new land offices.

6.3.1 Institutional Capacity

Insofar as land governance represents an important function of local governments in Burkina Faso, the creation of local land offices through the experimental pilot phase of the RLG should represent an advance in the institutional capacity of selected municipalities. In the SUPERMUN survey, the 'staffing' indicator measures the number of eight key staff positions filled in the municipality. These positions include a secretary, registrar, accountant, revenue manager, transferred material agent, statistical service officer, technical service officer, and agent of state and land affairs. It is somewhat ambiguous as to whether this latter position refers precisely to one of the SFR officers prescribed in the land laws and hired through MCC; however, it appears that these officers are being counted as such. We can see in table 6 that treated municipalities have, on average, approximately one additional key staff position filled. This is encouraging: the expected implementation of land offices does appear to be captured in this measure of institutional capacity, validating both the survey and the program implementation.

Importantly, the results in columns (1) - (3) of table 6 appear to be fairly constant across the country, with no significant heterogeneity between near-urban and more remote municipalities. Given MCC's oversight of this easily observable dimension of implementation, this seems plausible: additional land officers were hired in all treatment municipalities, regardless of local demand for documentation. When looking at the staffing of individual positions (in appendix table A19), hiring patterns appear slightly more nuanced. Although all treated municipalities have a land officer,

31

VARIABLES	(1) Staff	(2) Staff	(3) Staff	(4) Staff	(5) Staff	(6) Staff
Treatment	0.911**	0.933***	0.943***	0.765*	0.830**	0.899**
	(0.399)	(0.307)	(0.308)	(0.410)	(0.345)	(0.346)
Near-Urban				0.357	0.630***	0.500
				(1.546)	(0.241)	(0.369)
Treatment*Near-Urban				1.235	0.588	0.101
				(1.802)	(0.419)	(0.346)
Constant	4.655***	4.655***	4.639***	4.643***	4.633***	4.623***
	(0.285)	(0.257)	(0.156)	(0.287)	(0.269)	(0.160)
Observations	59	59	59	59	59	59
R-squared	0.084		0.250	0.132		0.257
Pair FE	No	No	No	No	No	Yes
Cluster SE	None	Pair	Pair	None	Pair	Pair
Number of comp		29	29		29	29

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6: One additional staff member is hired in treatment municipalities, likely the agent of state and land affairs

some control municipalities do as well; the difference in land officers between treatment and control municipalities is only 0.6.[71] The overall increase of precisely one staff member seen in table 6 indicates that some treated municipalities which would have hired a land officer even in the absence of treatment are able to substitute for other staff, particularly technical agents, materials agents, and revenue managers.

Beyond hiring additional staff members, does the creation of land offices impact broader measures of municipal institutional capacity? The SUPERMUN data aggregates measures of institutional capacity into an index; to avoid problems of multiple hypothesis testing I focus on this index in table 7. Municipalities that received land offices do appear to have insignificantly higher scores on this index.[72]

It is worth considering whether these weak results are due to 'spillovers' in institutional capacity due to the creation of externally-funded and supervised land offices in the municipality. Interestingly, when we focus on near-urban areas, which as demonstrated above have stronger political responses and the potential for more resources from SFRs beyond those directly provided by MCC, the impact of being assigned to treatment does appear significant. This suggests that additional hiring is not the only impact of land offices in the functioning of municipal government.

As exploratory analysis, then, I examine in figure 8 the impacts of treatment on the various component measures in the institutional capacity index. We can see that on most measures, effects are insignificant. However, there does appear to be a significant increase in the number of municipal

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[71] Approximately 55% of non-pilot phase municipalities have a land officer by 2017; this figure falls above the level (38%) in control municipalities.

[72] In the appendix, I replicate tables 7 and 9 using a more standard inverse covariance-weighted matrix for aggregating measures of institutional capacity and service delivery; in tables A17 and A18 I find qualitatively similar results.

| | (1) | (2) | (3) | (4) | (5) | (6) |
VARIABLES	IC Score	IC Score	IC Score	IC Score	IC Score	IC Score
Treatment	2.473	2.575	2.827	1.119	1.138	2.045
	(2.551)	(2.379)	(2.398)	(2.513)	(2.500)	(2.629)
Near-Urban				-25.36***	-25.21***	-11.95**
				(9.404)	(9.400)	(4.621)
Treatment*Near-Urban				29.85***	29.63***	15.36***
				(10.96)	(10.92)	(2.629)
Constant	39.65***	39.63***	39.47***	40.56***	40.55***	39.91***
	(1.835)	(1.916)	(1.240)	(1.777)	(1.777)	(1.264)
Observations	58	58	58	58	58	58
R-squared	0.017		0.049	0.142		0.102
Pair FE	No	No	Yes	No	No	Yes
Cluster SE	None	Pair	Pair	None	Pair	Pair
Number of comp		29	29		29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: An Index of Institutional Capacity is higher in treatment municipalities, although the effect is driven primarily by near-urban treated areas

council meetings held (out of four mandated annual meetings), which is also evident in table 8. Interestingly, tax revenue raised per capita is (insignificantly) lower in treated municipalities: there does not appear to be a crowding-in effect of municipal revenue from land offices, and perhaps even some substitution. These two findings suggest that any improvements in institutional capacity from the land offices are not merely spillovers from one functioning administration. Instead, the shift in the political climate in the municipality (as documented above in party entry) seems to affect the functioning of municipal governments. Additional deliberative meetings are held, suggesting elected council members are more dedicated to their jobs.

6.3.2 Service Delivery

If, as I have argued throughout this paper, politicians are motivated not only by private rents but instead care about their constituents, I would expect treatment municipalities receiving additional revenue through land offices in 2017 to use this money to improve public service delivery. Alternatively, if politicians are solely rent-seeking and are able to extract fees for land documents as private rents, then there should be no change in the (already low) quality of public services. Even if politicians don't extract rents, if land offices are only self-financing (not bringing in more revenues than they require for staffing the land office), then the impacts should be contained to the staffing results above. However, when turning in table 9 to the measures of municipal public delivery in the SUPERMUN survey, there is a positive impact of treatment, although insignificant overall. Importantly, in near-urban treated areas (where land office revenues are largest), there is a significant increase in the index of public service delivery in treated areas. This result is (positively) surprising: public service delivery is notoriously difficult to improve, particularly on the short time frame ex-

Colored markers indicate signifcant p-value at α = .05.

Figure 8: Standardized effects, including experimental pair fixed effects and clustered standard errors, of treatment on individual measures of municipal government institutional capacity.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Council Meetings			Tax Revenue		
Treatment	0.349**	0.351***	0.352***	-999.7	-970.1	-959.1
	(0.132)	(0.115)	(0.115)	(1,829)	(1,386)	(1,379)
Constant	3.517***	3.517***	3.516***	2,617**	2,617	2,597***
	(0.0943)	(0.119)	(0.0587)	(1,304)	(1,808)	(701.1)
Observations	59	59	59	59	59	59
R-squared	0.109		0.254	0.005		0.017
Pair FE	No	No	Yes	No	No	Yes
Cluster SE	None	Pair	Pair	None	Pair	Pair
Number of comp		29	29		29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Higher institutional capacity scores appear to be driven in part by the number of municipal council meetings (out of 4 mandated annual meetings); Taxes raised per capita do not seem to be affected by additional revenues either by substitution or crowding-in

VARIABLES	(1) SD Score	(2) SD Score	(3) SD Score	(4) SD Score	(5) SD Score	(6) SD Score
Treatment	1.683	1.698	1.710	0.776	0.791	0.644
	(3.226)	(2.724)	(2.739)	(3.261)	(2.713)	(2.776)
Near-Urban				-27.15**	-25.33***	-17.15
				(12.30)	(3.852)	(14.37)
Treatment*Near-Urban				26.86*	25.72***	21.86***
				(14.33)	(8.534)	(2.776)
Constant	66.81***	66.81***	66.80***	67.75***	67.69***	67.39***
	(2.301)	(2.027)	(1.393)	(2.285)	(1.879)	(1.601)
Observations	59	59	59	59	59	59
R-squared	0.005		0.013	0.086		0.089
Pair FE	No	No	Yes	No	No	Yes
Cluster SE	None	Pair	Pair	None	Pair	Pair
Number of comp		29	29		29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Treatment appears to have a positive but insignificant effect on an index of service delivery; however, the effect is positive and significant in near-urban areas.

amined here (with outcomes measured in 2017, only a year after land offices were fully functioning and bringing in revenue).

Again, as an exploratory exercise, I examine treatment effects on the individual components of the service delivery index in figure 9. Unsurprisingly, all measures are individually insignificant at the 5% level, although the signs are largely consistent with mild improvements in public service delivery.

In table 10, I present regression results for two service delivery outcomes of particular interest. In the first three columns, I present results for the share of schools with functioning wells in a municipality, which is positive and significant at the 10% level (although this significance does not survive multiple-hypothesis testing adjustment). This is suggestive, however, that municipal leaders are using the additional resources from land offices to improve constituent welfare, and are defining that welfare broadly. This marginal impact on welfare does not appear to be driven solely by institutional spillovers: we might imagine that external funding for and training in paperwork processing for land documents would also improve other formal state documentation that matters for constituents, such as birth certificates. However, in columns (4) - (6) of table 10, we see no significant impact of land offices on the share of births formally documented with a birth certificate. Any (slight) improvements in service delivery and municipal government performance are not simply a product of external oversight of land offices. Instead, these results from the SUPERMUN scorecard are consistent with public service-oriented politicians using new land offices, and their attendant resources, for improving constituent lives. Although 2017 is too soon to see substantial changes in measured service delivery, these results are encouraging and consistent with the motivations outlined in the model.

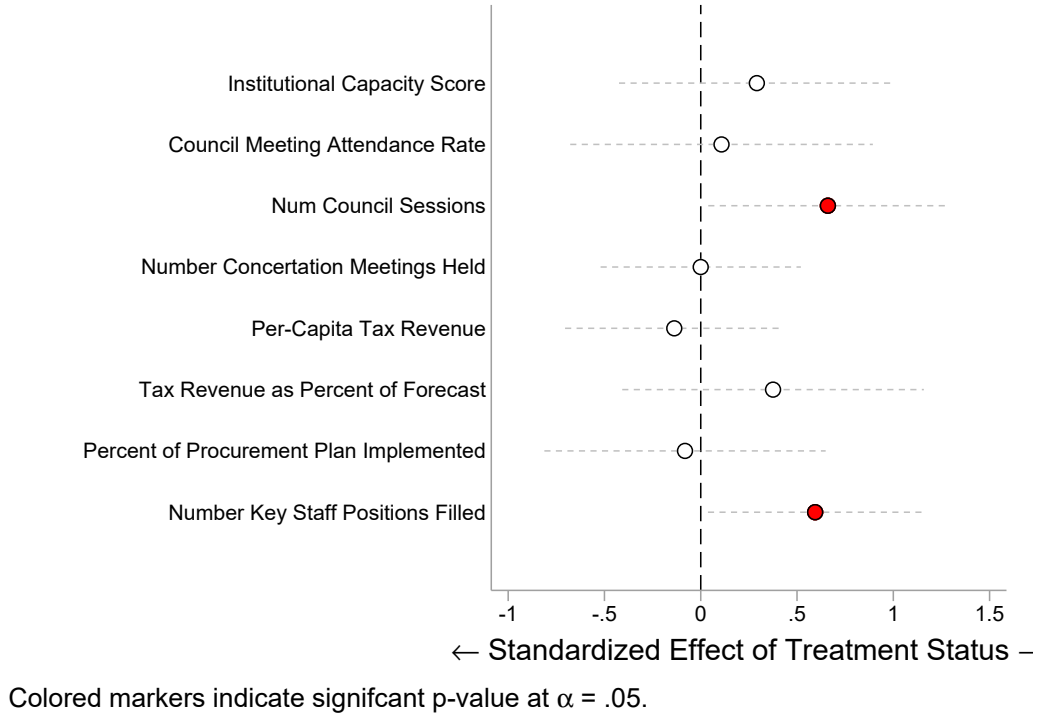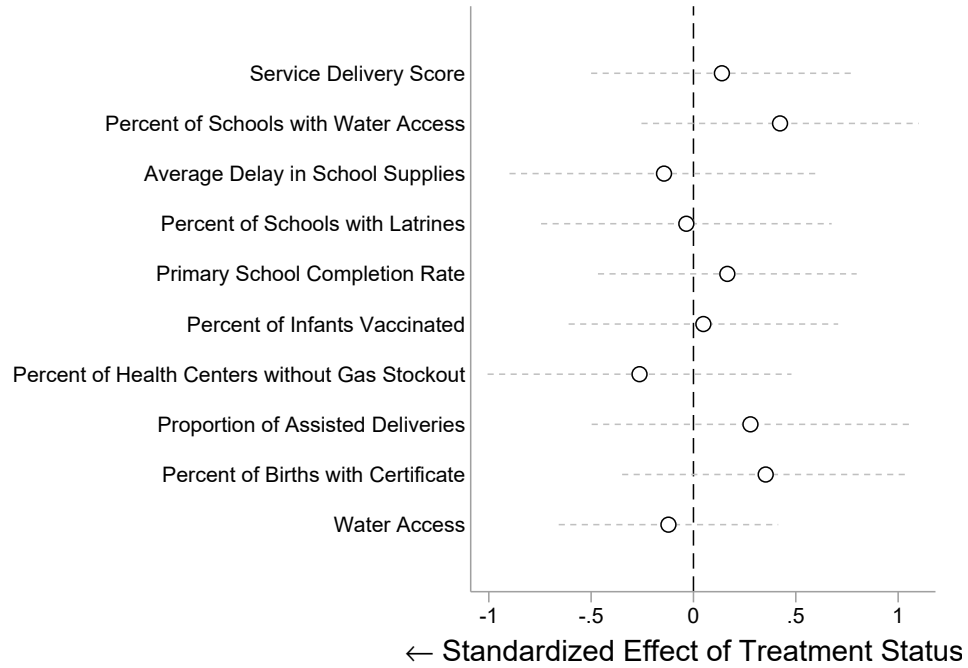Colored markers indicate signifcant p-value at α = .05.

Figure 9: Standardized effects, including experimental pair fixed effects and clustered standard errors, of treatment on individual measures of municipal government service delivery

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES		School Wells			Birth Certificates	
Treatment	5.450	5.450*	5.450*	10.83	10.90	11.01
	(3.307)	(3.042)	(3.038)	(8.064)	(7.522)	(7.619)
Constant	87.80***	87.80***	87.80***	36.39***	36.39***	36.30***
	(2.358)	(2.791)	(1.545)	(5.751)	(3.726)	(3.874)
Observations	59	59	59	59	59	59
R-squared	0.045		0.100	0.031		0.069
Pair FE	No	No	Yes	No	No	Yes
Cluster SE	None	Pair	Yes	None	Pair	Pair
Number of comp		29	29		29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Treatment appears to improve municipal service delivery slightly, particularly in the share of schools with functioning wells; no significant impact on the proportion of births documented with a birth certificate.

7 Conclusion

A significant literature on customary tenure systems on the African continent has explored the interface between traditional and state land rights institutions (Cotula et al., 2007; Alden Wily, 2011; Fenske, 2011; Goldstein and Udry, 2008). The state, by documenting land rights, aims to make them more secure and enforceable and thereby encourage long-term investment in the land. In this paper, I more explicitly consider the distribution of land rights among different institutions, and how state formalization entails consolidation of rights. The process of documenting land rights for the state can therefore create conflicts between rightsholders, which may be fought in the political arena. In this paper, I explore whether local governments and decentralized state administration can effectively adjudicate the distribution of land rights that comes with documenting customary tenure.

Using the experimental pilot phase of a land governance decentralization in Burkina Faso, I have demonstrated that politicians do try to control local land offices, as more parties contest elections in causal response to the announcement of treatment. Using a theoretical model and a careful attention to heterogeneity in land tenure contexts, I find evidence that this political behavior is not driven only by a desire for private rents but also by a concern for constituent welfare. After the 2012 local elections, winners could set land policy in their municipalities, and in particular, adjudicate the distribution of consolidated land rights. This has clear implications for the welfare of land rightsholders, motivating public-spirited political actors. After this first election, land maps are largely set, so politicians' concerns are satisfied. On the other hand, the potential for rents persists through and after the 2016 elections, as individual certificates will continue to be granted for a fee. The fact that I observe politicians entering races in treatment municipalities after the 2012 announcement, but not in the later 2016 race, indicates that they are not solely rent-seeking. I am unable to quantify the relative weights of these two motives, except to rule out a complete focus on private rents.

In further support of these new political entrants being public-spirited, I find that locations that received land offices do seem to improve local government institutional capacity, and there are small, insignificant improvements in the public services that improve constituent lives. These results bear the important caveat that donor involvement in the pilot phase may have exerted enough control to overrule local politics. That is, if MCC was involved enough in the documentation process, electoral winners may not have been able to implement their preferred policy (and therefore been reluctant to contest again in 2016). However, there are suggestive results outside of MCC's focus, such as school wells.

Nevertheless, there are important implications for policy. If, as I have suggested, constituent welfare is an important motivator for local politicians, then decentralization is not as subject to elite capture as a more pessimistic, rent-seeking view of politicians would imply. The model of political behavior I explore also suggests that decentralization is less likely to suffer from elite capture when there are electorally viable constituencies that can resolve their conflicts through the electoral realm, or where outside pressures limit elite capture. In this regard, the pilot locations are an 'ideal case' for decentralization. Areas with significant minorities whose welfare would be impacted by policy,

such as pastoralists, may not see such neat electoral resolutions; donor involvement may also have played a role in the seeming success. Future research could consider later land offices in Burkina Faso using quasi-experimental methods. This would provide an important test of quasi-experimental methods often used in political economy against a randomized control trial, as well as allowing for exploration of decentralization that occurred with weaker donor control in more fractured constituent environments. The pilot municipalities, nevertheless, do seem to show that decentralization can be successful, and in particular, that local politicians have important information about their constituents and can make government more accountable and responsive to citizens.

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A   Model & Solutions

In this model, I start from a traditional model of party competition (I draw from Bardhan and Mookherjee (2010) and Bardhan and Mookherjee (2000), who draw from a Grossman and Helpman (1996)-style model which is relatively common). However, I add two features to this style of model: first, I allow for party entry rather than assuming 2 parties (modeling party entry with a standard model as in work by Tavits (2006), and secondly, allowing for more than 2 potential parties. There are other minor modifications which I will discuss as they emerge.

To illustrate the intuition, however, I consider the entry decision of a second political party in a context where one party has historically dominated (and always contests the election). The model can easily be extended to allow for multiple challengers to this incumbent.

A.1   Setup

Consider a stylized village which has several potential groups of people, with groups denoted by g. Within each village, each class g exists in a share α_g ($\sum_g \alpha_g = 1$, $\alpha_g \geq 0$).

There is an incumbent political party which has historically dominated local politics and therefore faces extremely low costs of contesting elections. These costs are low enough that for any non-zero probability of winning the election, this party (denoted d) always contests the election. A potential challenger can choose to create a political party c and contest local elections, although this is costly (with party-specific costs of running for office C_p).

The benefits of holding elected office are twofold: first, there are private rents that accrue to the officeholder, E_p (which could be nonmonetary, such as prestige, but are increasing in the resources controlled by the local government).

Secondly, parties have intrinsic preferences over the interests of the classes they represent, represented by welfare weights w_g^p on each group g. These enter into the politician's payoff as $\sum_g \alpha_g w_g^p U_g(\theta\pi)$. That is, constituent welfare is important to political entrepreneurs, independent of their private rents from holding office. The parameter θ represents the correlation between *de jure* and *de facto* rights: that is, to turn the policy position π_p of a candidate for office into reality (and this reality is what matters for constituent welfare).

Therefore, if a party p wins office, their benefits of holding office are given by $E_p + \sum_g \alpha_g w_g^p U_g(\theta\pi_p)$ and if they lose office to party q, their payoff is $\sum_g \alpha_g w_g^p U_g(\theta\pi_q)$. Therefore, the challenger c will choose to contest the election against the incumbent d if:

$$\psi_c \left[E_c + \sum_g \alpha_g w_g^c U_g(\theta\pi_c) \right] + (1 - \psi_c) \left[\sum_g \alpha_g w_g^c U_g(\theta\pi_d) \right] - C_c \geq \sum_g \alpha_g w_g^c U_g(\theta\pi_d) \qquad (2)$$

Where ψ_c is the probability of party c winning the election, as in a standard Tavits-style model of party entry. ψ_c is an increasing, continuously-differentiable function of V_c, the vote share won by that party. However, parties have some uncertainty about ψ_c, so (for instance) a party which expects to win 49% of votes may, in some circumstances, still contest the election.

Politically-informed voters choose who to vote for based on their expected utilities if governed by

each party and their (randomly distributed) loyalty towards the incumbent party, v_g. This loyalty has a group-specific distribution [note: either assume normal or uniform]. Therefore, voters of group g vote for party c over the incumbent d if $U_g(\theta\pi_c) \geq U_g(\theta\pi_d) + v_g$, where π_p is the policy choice of party p.

I solve for party entry and policy choice using backwards induction: parties consider how their entry and policies will affect voter choice, and maximize their own payoffs with this in mind. Therefore, I begin with voter choices before modeling the party decisions. The order of party decisions is as follows: first, the challenger decides both whether or not to contest the election and what their policy, π_c, will be. Then, the incumbent party (which always contests) announces their own policy, π_d.

A.2 Pre-Reform Solutions

Before the announcement of the land administration decentralization, assume that local governments are constrained to follow central government policy directives. Therefore, π_p is the same regardless of the election result.

Informed voters of group g, then, vote for the challenger over the incumbent if $0 \geq v_g$. This gives a vote share to the challenger of:

$$V_c = \sum_g \alpha_g \int_{-\infty}^{0} v_g dv_g$$

Noting once again that policy choices are irrelevant, the challenger will choose to contest the election if:

$$\psi_c \left(\sum_g \alpha_g \int_{-\infty}^{0} v_g dv_g \right) [E_c] - C_c \geq 0$$

An intuitive result: they will only contest the election if the expected benefits of winning are greater than the costs of contesting. Note that if the average loyalty to the incumbent is positive ($\overline{v_g} \geq 0$), the probability of winning office is relatively low. Therefore in many cases, the challenger will not contest the election, resulting in the uncompetitive electoral environment observed before the introduction of the land reform.

A.3 Reform Announcement Solutions

When a municipality learns that it will receive a land office in the next electoral term, however, the policies implemented by the next election's winner become meaningful to both voters and politicians. Land offices in Burkina Faso were designed to be locally controlled, unlike the deconcentrated municipal services which operated under direction from the central government. The decisions made during the land documentation process could matter substantially to constituent well-being: fair documentation of rights should improve tenure security (with well-explored theoretical and empirical implications for agricultural investment as well as improved access to rental and credit markets),

but an unscrupulous actor could take the opportunity to claim documents for land they do not have (primary use) rights to.

In this case, then, voters will choose the challenger if:

$$U_g(\theta\pi_c) \geq U_g(\theta\pi_d) + v_g$$

Which gives a vote share for the challenger of:

$$V_c = \sum_g \alpha_g \int_{-\infty}^{U_g(\theta\pi_c)-U_g(\theta\pi_d)} v_g dv_g$$

Which, if voters are made better off under π_c than under π_d, is higher than in the pre-reform case. More accurately, party c can attract more voters of group g by campaigning on a platform that favors them in the land reform; if this platform is redistributional and makes voters of group h off, then they will lose voters of group h.

Moving backwards, the incumbent then sets their policy π_d (conditional on the entry and policy choices of the challenger). There are two relevant cases for the incumbent to consider.

First, if the challenger is not contesting the election, then the incumbent seeks to maximize:

$$\max_{\pi_d} \left[E_d + \sum_g \alpha_g w_g^d U_g(\theta\pi_d) \right] - C_d$$

As they are guaranteed to win office. Denote the solution to this problem π_{0d}^*.

If, however, the challenger has announced that they will contest the election with a platform of π_c^* (optimally solved below), then the incumbent will maximize:

$$\max_{\pi_d} (1 - \psi_c(V_c(\pi_c^*, \pi_d))) \left[E_d + \sum_g \alpha_g w_g^d U_g(\theta\pi_d) \right] + \psi_c(V_c(\pi_c^*, \pi_d)) \left[\sum_g \alpha_g w_g^d U_g(\theta\pi_c^*) \right] - C_d$$

Denote this solution as $\pi_{1d}^*(\pi_c^*)$.

Turning to the challenger, if they decide to contest the election, they anticipate the response function $\pi_{1d}^*(\pi_c)$ and maximize:

$$\max_{pi_c} \psi_c(V_c(\pi_c, \pi_{1d}^*(\pi_c))) \left[E_c + \sum_g \alpha_g w_g^c U_g(\theta\pi_c) \right] + (1 - \psi_c(V_c(\pi_c, \pi_{1d}^*(\pi_c)))) \left[\sum_g \alpha_g w_g^c U_g(\theta\pi_{1d}^*(\pi_c)) \right] - C_c$$

Which is optimally solved by π_c^*.

The challenger will then compare their expected payoff if they enter and set π_c^* with their payoff if they choose not to contest:

$$\sum_g \alpha_g w_g^c U_g(\theta\pi_{0d}^*)$$

And choose the entry decision that gives them a higher payoff.

A.3.1 Simplified Two-Group Case

For simplicity, imagine that there are only two groups in the population. One group, f, are ordinary farmers who cultivate an individual plot of land and would prefer that the land office merely document their existing rights to the land. The second group, e, are local elites who under customary tenure arrangements have some secondary rights over farms cultivated by the f type (for instance, e types hold transfer rights while f types hold use rights over the same piece of land). There are more farmers than elites: $\alpha_f > \alpha_e$. These elites would prefer that the land office document their rights instead of those held by the farmers. If I represent the policy choice π_p as denoting the extent to which the documentation process favors the elites, with $\pi = 1$ only documenting all rights as belonging to the elites and $\pi = 0$ documenting all rights as belonging to farmers, $U'_e(\pi) > 0$ and $U'_f(\pi) < 0$.

Therefore, the vote share for the challenger (if they contest) is:

$$V_c = \alpha_f \int_{-\infty}^{U_f(\theta\pi_c)-U_f(\theta\pi_d)} v_f dv_f + (1-\alpha_f)\int_{-\infty}^{U_e(\theta\pi_c)-U_e(\theta\pi_d)} v_e dv_e$$

Note that because the utilities of each group are opposed, for any given policy set by the challenger π_c, if the incumbent sets $\pi_d > \pi_c$, more elite voters will choose the incumbent (and vice-versa).

Assume further that the elites and the incumbent party are naturally affiliated ($w_e^d > w_f^d$), and the challengers value the welfare of the farmers more ($w_e^c < w_f^c$).

If the challenger does not contest the election, the incumbent will solve:

$$\max_{\pi_d} \left[E_d + \alpha_f w_f^d U_f(\theta\pi_d) + (1-\alpha_f)w_e^d U_e(\theta\pi_d)\right] - C_d$$

π_{0d}^*, then, solves the first order condition:

$$\alpha_f w_f^d \theta \frac{\partial U_f}{\partial \pi_d} + (1-\alpha_f)w_e^d \theta \frac{\partial U_e}{\partial \pi_d} = 0$$

If the challenger does contest the election and announces π_c^*, the incumbent will solve:

$$\max_{\pi_d} (1-\psi_c(V_c))\left[E_d + \sum_g \alpha_g w_g^d U_g(\theta\pi_d)\right] + \psi_c(V_c)\left[\sum_g \alpha_g w_g^d U_g(\theta\pi_c^*)\right] - C_d$$

When I take the first order condition to solve for π_{1d}^*, I find:

$$
\begin{aligned}
0 =& \alpha_f w_f^d \theta \frac{\partial U_f}{\partial \pi_d} + (1-\alpha_f)w_e^d \theta \frac{\partial U_e}{\partial \pi_d} - \frac{\partial \psi_c}{\partial V_c}\frac{\partial V_c}{\partial \pi_d}\left[E_d + \alpha_f w_f^d U_f(\theta\pi_d) + (1-\alpha_f)w_e^d U_e(\theta\pi_d)\right] \\
& -\psi_c(V_c)\left[\alpha_f w_f^d \theta \frac{\partial U_f}{\partial \pi_d} + (1-\alpha_f)w_e^d \theta \frac{\partial U_e}{\partial \pi_d}\right] + \frac{\partial \psi_c}{\partial V_c}\frac{\partial V_c}{\partial \pi_d}\left[\alpha_f w_f^d U_f(\theta\pi_c) + (1-\alpha_f)w_e^d U_e(\theta\pi_c)\right]
\end{aligned}
$$

Which can be rewritten as:

$$0 = (1 - \psi_c(V_c)) \left[\alpha_f w_f^d \theta \frac{\partial U_f}{\partial \pi_d} + (1 - \alpha_f) w_e^d \theta \frac{\partial U_e}{\partial \pi_d} \right]$$

$$- \frac{\partial \psi_c}{\partial V_c} \frac{\partial V_c}{\partial \pi_d} \left[E_d + \alpha_f w_f^d [U_f(\theta \pi_d) - U_f(\theta \pi_c)] + (1 - \alpha_f) w_e^d [U_e(\theta \pi_d) - U_e(\theta \pi_c)] \right]$$

Note that the term inside the brackets on the first line of this condition is exactly the first order condition from the uncompetitive case. I can use this to show that if $\pi_c < \pi_{0d}^*$ (that is, the challenger proposes a policy more favorable to farmers than the uncompetitive policy chosen by the incumbent), that the incumbent will shift their own optimal policy: $\pi_{0d}^* > \pi_{1d}^*(\pi_c)$.

Intuitively, in order to win some votes from farmers and therefore be competitive, the incumbents will respond to the policy proposal of the challenger by moderating their own policy stance.

A.3.2 Heterogeneity: Municipalities Near Cities

The simple two-group case discussed above previews some of the tensions inherent in the land documentation process, which become increasingly important in municipalities close to cities.

I will refer to these rural areas that are reasonably close to (rapidly growing) cities as 'near-urban' for concision, but it is important to note that they are predominantly rural in themselves. That is, local constituents are engaged in a primarily rural way of life. However, urban residents are increasingly seeking to purchase rural land near their city homes, as a source of insurance, connection to the countryside, or vacation home. These urban residents may have extended family in other regions of the country, but seek a closer rural retreat. This also implies that they likely have little or no connection with the inhabitants of the nearby rural municipalities they seek to buy land in. Two important implications stem from this fact: first, they can be ignored as constituents in either voting behavior or politicians' preferences, and second, they have a relatively higher demand for clearly-documented land.

This latter point is crucial. Rural residents are embedded in the same social environment as their customary land rights: the individual who holds secondary (access, transfer, etc) rights to your farm plot is your neighbor, uncle, or friend. As documented in a substantial body of qualitative evidence, this also means that bundles of rights being distributed across multiple individuals does not in itself make those rights less secure. However, an outsider to this social system will struggle to parse its property rights. Therefore, the value of clearly documented rights, backed by the legal framework of the state (as opposed to the social environment), is higher for outsiders to the community, particularly those seeking land for part-time use who may never become part of the community.

Urbanites seeking land in nearby rural areas have a higher relative demand for documentation, then. They are willing to pay higher fees to cover the cost of documents. The decentralized SFR offices, then, can set higher fees for APFR documents if they are near urban areas, to tap this higher willingness to pay. These fees become part of the municipal budget, which local elected officials can take advantage of. In the context of the model, this can be represented as a larger increase in E_p in near-urban areas when the land offices are introduced. The entry condition for the challenger, given

by

$$\psi_c(V_c) \left[E_c + \sum_g \alpha_g w_g^c U_g(\theta\pi_c) \right] + (1 - \psi_c(V_c)) \left[\sum_g \alpha_g U_g(\theta\pi_{1d}^*) \right] - C_c \geq \sum_g \alpha_g w_g^c U_g(\theta\pi_{0d}^*)$$

Is more likely to be satisfied as E_c increases. The model therefore predicts more party entry in response to the announcement of treatment in near-urban municipalities. This is a relatively straightforward story of political rents: the rents of holding office increase more in near-urban areas due to higher willingness to pay for documentation by outsiders, and so there is a political response.

This model also demonstrates another mechanism by which the introduction of land offices in near-urban areas leads to a greater response by political parties choosing to contest the election. Parties also care about the welfare of their constituents, as captured by the payoff term $\sum_g \alpha_g w_g^p U_g(\theta\pi)$ (and not only their own private rents, E_p). If constituents' utility responds more to policy in near-urban areas, then the value of contesting the election is higher in near-urban areas set to receive a land office.

To understand why constituents may care more about land documentation policy in near-urban areas, consider the role of policy in a general sense. In an isolated rural environment, if the documents created by SFRs exclude secondary rightsholders, or is granted to an individual without primary use rights, there are relatively few consequences. Without a strong permeation of the state's legal system and enforcement (that is, a low θ), the individual who holds socially-sanctioned customary rights will continue to exercise them, regardless of what documents say. However, in near-urban municipalities, the risks of the documentation process become larger. Imagine that documents are granted to a secondary rightsholder who is not the primary user of the land. They then sell this land to an urbanite, who accepts the document at face value as indicating they are the appropriate person to sell the land. The urbanite is able to enforce their legal rights, through better access to the formal (state) justice system. This dynamic is captured in the model as an increase in θ, the efficacy of the policy: the land documentation process has larger effects in near-urban areas than in more remote ones where a policy may be blunted. Returning to the two-group simplified case detailed above, elites would have more incentive to control the documentation process and have land documented in their name, as they can sell it on to outsiders.

Formally, an increase in *theta* will also cause relatively more political entrants to contest elections in municipalities near urban areas in response to the reform. This is not only due to the higher weight on the constituent-welfare component of the politicians' payoffs: the strategic interactions of policy choices explored above also become more important.

I have shown two mechanisms by which potential candidates in municipalities close to urban areas will respond more strongly to the creation of land offices than their counterparts further away. Both of these mechanisms stem from urban outsiders' demand for land and their inability to navigate the nuanced social complexities of customary tenure. Despite having the same net effect, the two mechanisms are theoretically distinct: the latter goes beyond private rents to account for politicians valuing their constituent welfare.

A.3.3 Heterogeneity: Pastoralists

This model could also be used to consider areas where pastoralists with secondary rights represent an important concern for land offices to resolve. Primary rights-holders may desire policy platforms that will clarify or exclude pastoralists from accessing their land as herds can cause crop damage. Pastoralists, on the other hand, may wish to see their secondary access rights enshrined in formal documents including land use plans. This again makes constituents weight policy platforms more strongly, and, in turn, should (all else held equal) increase the number of parties contesting the election.

There is one important difference between municipalities facing near-urban land pressures and those facing pressures from pastoralists: the population shares of relevant constituent groups. In near-urban areas, party challengers who value smallholder farmers (as opposed to elites with secondary transfer rights) can make large electoral gains simply by proposing a more favorable policy allocation to the numerous farmers.[73] Appealing to pastoralists at the expense of farmers is not electorally viable, as pastoralists make up no more than 10% of the local population in these regions[74] and may not be registered to vote locally. Knowing that winning office is nearly impossible, not only are potential parties less able to put their own policies into action, but the incumbent is also less likely to shift their own policy in response (as there are few voters to 'poach' and becoming more favorable to pastoralists opens them up to challengers on the other side). Therefore, despite the important land conflicts in areas where pastoralists coexist with farmers, the model would predict relatively smaller response by political parties, as the costs of contesting are too high relative to an unlikely realization of benefits. If there was more variation in the population shares of pastoralist groups in experimental municipalities, the threshold imposed by these costs might be surpassed, in which case parties would enter more in response to this type of land conflict.

B Voter Attitudes: Afrobarometer Surveys

If, as I have argued, the creation of land offices has significant welfare effects for local citizens, those citizens should care about their functioning and the political processes at play around them. In order to examine the attitudes and perceptions of voters, I also use data from the subnationally geo-coded Afrobarometer survey (Benyishay et al., 2017). This data is nationally representative but not available in all pilot-phase municipalities in each round, so the difference-in-differences strategy does not control for unobserved heterogeneity between municipalities. Therefore, I present this analysis as supplemental, and results should be read with appropriate caution. However, it seems that voters may perceive politicians' motives as corrupt, particularly when new candidates run for office. I also find no evidence that pilot land offices were targeted according to national politics, such as support for the CDP.

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[73]As is seen globally, elites, although few in number, have financial resources that may make them attractive to court for the incumbent.

[74]This is true when pastoralists are identified either by ethnicity or language.

B.1   Data

The Afrobarometer surveys use nationally representative samples of 1,200 citizens geo-coded to the municipality of residence. There have been three rounds of this survey in Burkina Faso to date (2008, 2012, and 2015) which neatly parallels the timing of municipal elections and the MCC intervention. Each wave of this repeated cross-section asks many of the same questions on political attitudes, including beliefs about and preferences for democratic functioning, perceptions of corruption, political identity, and voting intentions.

Despite being representative of the country as a whole, Afrobarometer does not survey citizens in every municipality. This restricts the sample in pilot-phase municipalities considerably, particularly as pilot municipalities were specifically chosen as priority areas in land conflicts (and are thus not necessarily representative of the country as a whole). The distribution of respondents in pilot-phase municipalities in each wave is given in table A1.[75]

Year	Treatment	Control
2008	5 Municipalities	2 Municipalities
	80 Respondents	40 respondents
2012	11 Municipalities	10 Municipalities
	88 Respondents	80 Respondents
2015	7 Municipalities	4 Municipalities
	96 Respondents	64 Respondents

Table A1: Distribution of Afrobarometer survey respondents in pilot-phase municipalities

Table A2 reports baseline (2008) outcomes from the Afrobarometer survey between treatment and control municipalities. It does show broadly lower perceptions of corruption in treatment municipalities; however, because the pattern also holds for national leaders like the president's office, this is unlikely to be driven by more effective or honest local leadership in these municipalities.

In estimating treatment effects for outcomes from the Afrobarometer survey data, I use an empirical strategy that accounts for the spatially-clustered and unevenly distributed observations between treatment and control municipalities and across survey rounds. My preferred specification includes region (rather than experimental pair) fixed effects, which is the minimum geographic unit that consistently includes both treatment and control municipalities in a given survey round.[76] As I only have few clulsters and limited variation in treatment, I follow Cameron and Miller (2015) and use the Wild Cluster Bootstrap to estimate p-values (clustering at the region level).[77] I separately bootstrapped each coefficient of interest, so the interpretation of results post-treatment is as above:

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[75]Power calculations suggest that the sample in experimental municipalities is sufficient to detect reasonable changes in outcomes of interest, even in cross-sectional inference.

[76]Although I want to control for unobserved factors that link respondents who live in a region together, I am unable to include experimental-pair fixed effects. This is because of data limitations, as there are only three pairs of treatment and control municipalities surveyed within the same year (2012). Therefore, I need to include a higher level of fixed effect to ensure the estimation does not only capture noise.

[77]As Cameron and Miller (2015) suggest, the preferred specification reported uses the Webb 6-point distribution rather than the default Rademacher 2-point distribution, as the former performs better with 12 or fewer clusters. However, the results are robust to the choice of distribution as well as to omitting fixed effects and clustering at municipality or province levels (which are less conservative); results upon request. I also consider survey weighting using Afrobarometer's computed weights; however, these are calculated to achieve national representativeness rather than representativeness of pilot municipalities.

| | (1) | (2) | (3) | | | |
Variable	Phase 2 treat Mean/CI	Phase 2 control Mean/CI	Not in study Mean/CI	(1)-(2)	Difference (1)-(3)	(2)-(3)
All/most corrupt: president	0.17 (0.01 - 0.32)	0.33 (-0.47 - 0.93)	0.21 (0.11 - 0.31)	-0.15**	-0.03	0.06**
All/most corrupt: local gov	0.11 (-0.00 - 0.24)	0.30 (-1.17 - 0.83)	0.24 (0.16 - 0.32)	-0.19*	-0.13**	0.03
All/most corrupt: gov officials	0.14 (-0.01 - 0.37)	0.40 (-1.72 - -1.36)	0.24 (0.17 - 0.32)	-0.26*	-0.11	0.08
Trust somewhat/a lot: local gov	0.63 (0.44 - 0.87)	0.68 (0.18 - 2.36)	0.63 (0.50 - 0.76)	-0.05	0.000	0.03
Leaders should not favor own group	0.40 (0.14 - 0.52)	0.25 (-0.38 - 0.70)	0.35 (0.29 - 0.41)	0.15	0.05	-0.05
Trust CDP	0.57 (0.43 - 0.75)	0.53 (-0.55 - -0.41)	0.51 (0.39 - 0.62)	0.05	0.06	0.01
N	80	40	944			
Clusters	5	3	12			

Notes: The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level. Afrobarometer data includes regional fixed effects and wild cluster bootstrapped confidence intervals clustered at the regional level.

Table A2: Balance at Baseline

the additional impacts of implementation over and above those of the announcement, rather than their joint significance.

The Afrobarometer survey asks many questions about perceptions of corruption in different levels and branches of government. These questions are generally asked in the form "How many government officials [of X group] are corrupt? None of them, Some of them, Most of them, All of them, Don't know." I then re-code responses into a binary indicator equal to zero for 'none of them'/'some of them', and equal to one for 'most' or 'all of them'. Although most outcomes I consider from the Afrobarometer data are binary, I use a linear fixed effects model rather than a binary outcomes model such as a logit, as the logit cannot be Wild Cluster Bootstrapped.[78] The results are robust to a variety of specifications, including a logit model with region fixed effects, with these additional results available upon request.

B.1.1 Voter Attitudes and Political Perceptions

Although election results data do not allow for a close examination of voter responses to the treatment, I can make use of surveyed voter attitudes and perceptions from the geo-coded Afrobarometer survey data. Despite suggestive evidence that politicians are driven by more than private rents, voters may perceive politicians' motives as corrupt. The timing of these surveys neatly parallels the timeline of the study: one wave was in 2008, prior to the signing of the compact with MCC (and thus should be unaffected by treatment status which was assigned later); the second occurred immediately prior to the 2012 municipal election (so should capture voter's perceptions after treatment status was announced but prior to implementation); and the third wave was in 2015 (after land offices had been created and were functioning). Therefore, I can use a similar difference-in-differences framework to those used above.

In column (1) of table A3, I look at perceptions of corruption in the office of the president as a placebo check. Given that treatment occurred at a local level, perceptions of the national government should not change substantially. Indeed, I find no significant differences between treatment and control municipalities in any year. In column (2), the question instead asks about corruption among government officials, a category which would include the functionaries working in newly-created land offices. Interestingly, although there is a statistically significant difference between treatment and control municipalities at baseline, there appears to be a statistically significant increase in the perception of corruption among government officials in treatment municipalities in 2012 (while the more heavily contested election campaigns are ongoing), falling back to similar levels as control municipalities in 2015 (after implementation). There is a similar pattern when looking at perceived corruption among local government (municipality) council members (column (3)), although these results are not statistically significant (bootstrapped p-value = .15). This pattern parallels the results for the number of parties contesting, which supports the interpretation of observed party behavior as rent-seeking. The observed decrease in perceptions of corruption in 2015 was unsurprising to those involved in the MCC project, as they felt that the Rural Land Governance project had paid particular

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[78]The Wild Cluster Bootstrap requires additively separable errors; even the Score Wild Bootstrap which was developed for nonlinear models may give inconsistent estimates of coefficients (Cameron and Miller, 2015). Furthermore, Gomila (2020) argues that in a causal framework, linear regression is preferred for binary outcomes.

	(1)	(2)	(3)
	Corruption in President's Office	Corruption in Gov Officials	Corruption in Local Gov
Treatment	-.0698054	-.3111226**	-.2588241**
	(0.67)	(0.05)	(0.19)
2012	.0110917	-.0632625	-.0878433
	(0.88)	(0.67)	(0.57)
Treatment*2012	.0911531	.2895166*	.3102148**
	(0.38)	(0.08)	(0.15)
2015	-.0051325	-.0004007	.0708754
	(0.96)	(0.99)	(0.50)
Treatment*2015	-.1661832	-.1386811	-.2395636*
	(0.36)	(0.48)	(0.16)
Constant	.3591549	.49182***	.3888866
Observations	358	370	388
R^2	0.018	0.039	0.039
Number Clusters	12	12	12
Fixed Effect	Region	Region	Region
Standard Errors	Wild Cluster Bootstrap	Wild Cluster Bootstrap	Wild Cluster Bootstrap
Years Asked	08/12/15	08/12/15	08/12/15

Wild Cluster Bootstrapped p-values in parentheses, cluster at regional level
*** p<0.01, ** p<0.05, * p<0.1 indicating analytic p-values
Data source: Afrobarometer

Table A3: Perceptions of corruption at the local level increase in anticipation of treatment

attention to avoiding corruption, including participatory land use mappings with communities that would prevent elite capture of the land offices. The results in column (3) are perhaps encouraging that concerns about political capture raised by party responses to the announcement of treatment in 2012 can be dealt with effectively.

I also use the Afrobarometer surveys to test whether pilot land offices were targeted to areas that supported the ruling party, as well as if their presence changed opinions about the CDP or about the need for presidential term limits (the trigger of 18 months of civil unrest in 2014-2015). Table A4 does not support either of these theories, however, as there are no systematic differences between treatment and control municipalities.

C   External Validity

To examine external validity, I present balance tables which compare experimental (phase II) treatment municipalities to municipalities which received treatment under a non-experimental program (either Phase I or non-MCC programs after 2015), as well as to all other municipalities which never received a land office. Table A5 presents balance on variables included in the election returns, and table A6 presesnts balance on variables included in the Afrobarometer surveys. It appears that my focus on the experimental phase also may make results more generalizable: non-experimental (phase I) municipalities appear to be larger and less electorally competitive than the rest of the country,

	(1)	(2)
	Support Term Limit	Trust CDP
Treatment	-.1651713	.163052
	(0.47)	(0.37)
2012	-.023049	-.010422
	(0.94)	(0.92)
Treatment*2012	.1908113	-.0635544
	(0.55)	(0.62)
2015	.1613045	
	(0.13)	
Treatment*2015	.034328	
	(0.69)	
Constant	.7313894	.5162566
Observations	421	229
R^2	0.078	0.013
N_g	12	11
Fixed Effect	Region	Region
Standard Errors	Wild Cluster Bootstrap	Wild Cluster Bootstrap

Wild Cluster Bootstrapped p-values in parentheses, cluster at regional level

Question on Trusting CDP only asked in 2008 & 2012

Data source: Afrobarometer

Table A4: No differential support for Compaoré or term limits

although surveyed voter attitudes are broadly similar.

D   Placebo Checks

Despite the random assignment of treatment status, it is worth checking that variables that should not be affected by the announcement of and creation of land offices in municipalities do not change differentially between treatment and control municipalities, to lend support to the causal argument. The electoral returns are relatively sparse in this regard: only the number of seats available in a given municipality, which is determined by a formula, is a good placebo. However, table A7 presents the same specification as throughout, with this placebo as the outcome.

In the Afrobarometer data, however, there is information on the provision of other local public goods in the municipality, perceptions of other levels of government and other functionings of government, and opinions about national political issues (including the 2014 unrest) as placebo checks. Tables A8, A9, A10 and A4 report these checks, respectively, and indeed, there are few statistically significant treatment effects on any of these outcomes.

E   Pastoralism

The second dimension of heterogeneity in land tensions explored in the model occurs in regions where pastoralists hold access rights. Herds can cause damage to crops, for which herd owners are

Variable	(1) Non-experimental Treatment Mean/SE	(2) Experimental[1] Treatment Mean/SE	(3) Never Treated Mean/SE	T-test Difference (1)-(2)	(1)-(3)
Seats Available	54.869 (3.222)	44.633 (4.008)	47.855 (2.217)	10.236	7.014*
Registered Voters	10299.131 (689.234)	8658.100 (750.101)	10976.860 (1018.567)	1641.031	-677.729
Voter turnout rate	0.501 (0.008)	0.496 (0.019)	0.504 (0.007)	0.005	-0.003
Parties Contesting	3.925 (0.213)	4.200 (0.357)	5.109 (0.373)	-0.275	-1.183**
Effective # Parties (votes)	2.129 (0.061)	2.163 (0.108)	2.471 (0.103)	-0.034	-0.342**
Pastoralist	0.449 (0.048)	0.600 (0.091)	0.425 (0.033)	-0.151	0.023
Far from Urban	0.467 (0.048)	0.333 (0.088)	0.380 (0.033)	0.134	0.087
N	107	30	221		

Notes: The value displayed for t-tests are the differences in the means across the groups. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.
Data source: CENI Electoral Returns
[1]: Experimental refers to only MCC Phase II treatment municipalities.

Table A5: Experimental treatment municipalities seem broadly similar to other municipalities which received land offices, but some differences between non-experimental treatment and never treated.

	Non-experimental Treatment Mean/CI	Experimental[1] Treatment Mean/CI	Never treated Never treated Mean/CI	T-test Difference (1)-(2)	(1)-(3)
All/most corrupt: president	0.17 (0.01 - 0.32)	0.33 (-0.47 - 0.93)	0.21 (0.11 - 0.31)	0.08	-0.01
All/most corrupt: local gov	0.11 (-0.00 - 0.24)	0.30 (-1.17 - 0.83)	0.24 (0.16 - 0.32)	0.15**	-0.02
All/most corrupt: gov officials	0.14 (-0.01 - 0.37)	0.40 (-1.72 - -1.36)	0.24 (0.17 - 0.32)	0.12	-0.05
Trust somewhat/a lot: local gov	0.63 (0.44 - 0.87)	0.68 (0.18 - 2.36)	0.63 (0.50 - 0.76)	0.04	0.01
Leaders should not favor own group	0.40 (0.14 - 0.52)	0.25 (-0.38 - 0.70)	0.35 (0.29 - 0.41)	-0.09	-0.02
Trust CDP	0.57 (0.43 - 0.75)	0.53 (-0.55 - -0.41)	0.51 (0.39 - 0.62)	-0.02	0.04

Notes: The value displayed for t-tests are the differences in the means across the groups. Wild Cluster Bootstrapped standard errors are clustered at the region level. Region fixed effects are included in all estimation regressions. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.
Data source: Afrobarometer survey
[1]: Experimental refers to only MCC Phase II treatment municipalities.

Table A6: Treatment groups are statistically similar on survey measures at baseline.

expected to (but may not always) pay compensation (Hagberg, 1998). These seasonal access rights are continually being renegotiated, but farmers may seek to exclude pastoralists altogether as rights are consolidated. I explore how these two tensions created by customary tenure systems mediate political responses to the land office decentralization. However, in areas that received pilot-phase land offices, the pastoralist share is extremely low. This means that they are not an electorally viable constituency which political parties could court, so we would not expect to see heterogeneous political responses among municipalities with slightly more or less (but all extremely low) shares of pastoralists in the community.

In order to measure where pastoralists (and their land rights) are significant local forces, I construct several variables of the share of pastoralist ethnic groups in each locality.[79,80] First, I use the Spatially Interpolated Data on Ethnicity, which draws on DHS surveys, along with population rasters, to compute the share of each municipality's population belonging to either the Fulani/Peul or Touareg/Bella ethnic groups, the main pastoralist groups in Burkina Faso (Müller-Crepon and

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[79]It is also possible to use FAO livestock systems data to look at the number and share of cattle in each region kept under pastoral or agro-pastoral (as opposed to intensive sedentary) systems (FAO, 2018). However, this primarily distinguishes areas which are dominated by pastoralist land use, rather than transitory pastoralist access to farms. The experimental pilot phase funded by MCC did not create any land offices in pastoralist-dominated areas, so the more granular ethnicity-based measures are more suited for distinguishing where pastoralists are significant at this more micro-level.

[80]Classifying ethnicity is tricky, particularly on a local level where intermarriage may be common and in contexts where ethnicity and livelihoods are mutually defined, hence the use of multiple measures for robustness (Müller-Crepon and Hunziker, 2018).

	(1)	(2)	(3)
VARIABLES	Seats Available	Seats Available	Seats Available
Treatment	-3.470	-3.470	-3.470
	(4.409)	(5.597)	(5.597)
2012	1.825	1.825	1.979
	(4.488)	(1.438)	(1.591)
Treatment*2012	-1.492	-1.492	-1.645
	(6.263)	(1.602)	(1.744)
2016	-0.955	-0.955	-1.194
	(4.535)	(1.503)	(1.642)
Treatment*2016	2.889	2.889*	3.128*
	(6.296)	(1.681)	(1.797)
Constant	48.10***	48.10***	48.02***
	(4.720)	(5.271)	(3.003)
Observations	175	175	175
R-squared			0.017
Number of pairs	29	29	29
Pair FE	No	No	Yes
Cluster SE	None	Pair	Pair

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Data source: CENI Electoral Returns

Table A7: Placebo Check: Number of Council Seats Available

	(1)	(2)	(3)	(4)	(5)	(6)
	Electricity grid	Piped water	Sewage	School	Police station	Health clinic
Treatment	-.1917588	-.3594043	-.0355205	-.3390796	.5180141	.2306639
	(0.67)	(0.06)	(0.40)	(0.08)	(0.10)	(0.58)
2012	-.1593666	-.1231068	-.0353802	-.0523584	.6888804	.4746795
	(0.68)	(0.73)	(0.41)	(0.55)	(0.08)	(0.35)
Treatment*2012	.3716798	.3631331	.0555865	.3912367	-.5919516	-.3163727
	(0.50)	(0.29)	(0.42)	(0.06)	(0.17)	(0.65)
2015	-.0511418	.7703703	.0251802	.0378365	-.2996438	.0695917
	(0.19)	(0.00)	(0.43)	(0.75)	(0.19)	(0.77)
Treatment*2015	.1321355	.0506836	.0662207	-.1625539	.239895	-.0463234
	(0.62)	(0.86)	(0.47)	(0.60)	(0.27)	(0.95)
Constant	.1741187	.2953581	.018679	1.027353	-.2965989	.2386938
Observations	448	448	448	448	448	448
R^2	0.131	0.763	0.090	0.211	0.206	0.105
Number of regions	12	12	12	12	12	12
Fixed Effect	Region	Region	Region	Region	Region	Region

Wild Cluster Boostrapped p-values in parentheses
Data source: Afrobarometer survey

Table A8: Placebo Check: Public services in Survey Enumeration Areas

	(1)	(2)	(3)	(4)
	Gov handling crime well	Gov handling health well	Gov handling education well	Gov handling water well
Treatment	-.0741821	.1851171	-.0270661	-.0179442
	(0.71)	(0.32)	(0.87)	(0.93)
2012	-.0551552	.2612381	.1489857	-.1478423
	(0.73)	(0.21)	(0.38)	(0.42)
Treatment*2012	.1355472	-.1597682	-.0196819	.0705859
	(0.51)	(0.39)	(0.92)	(0.69)
2015	.0553903	-.301878	-.2471382	.0595489
	(0.67)	(0.01)	(0.01)	(0.55)
Treatment*2015	-.077262	.0366653	-.1032353	-.2610781
	(0.66)	(0.80)	(0.46)	(0.01)
Constant	.5778868	.3678669	.5515825	.3699182
Observations	407	430	429	430
R^2	0.003	0.056	0.070	0.046
Number of regions	12	12	12	12
Fixed Effects	Region	Region	Region	Region

Wild Cluster Boostrapped p-values in parentheses

Data source: Afrobarometer

Table A9: Placebo Checks: Perceptions of how well the government is providing other public goods

	(1)	(2)	(3)
	Opposition parties should cooperate with the government	President should be monitored by NA	Officials often/always go unpunished
Treatment	-.1216905	-.037526	-.1412026
	(0.31)	(0.85)	(0.16)
2012	-.1370136	.1417801	.0055167
	(0.32)	(0.07)	(0.94)
Treatment*2012	.1399332	.080229	.0874819
	(0.41)	(0.60)	(0.39)
2015	.2180273	.0614474	.0764117
	(0.04)	(0.70)	(0.51)
Treatment*2015	-.0476423	-.0146765	.0286156
	(0.77)	(0.92)	(0.85)
Constant	.816052	.6099668	.6981749
Observations	424	424	394
R^2	0.039	0.051	0.026
Number of regions	12	12	12
fe	Region	Region	Region

Wild Cluster Boostrapped p-values in parentheses

Data source: Afrobarometer survey

Table A10: Placebo checks: attitudes about national politics

Hunziker, 2018). I also use the primary language spoken by respondents in the 2006 census to compute the share of respondents speaking Fulfuldé in each region, the language of the Fulani/Peul people (Minnesota Population Center, 2019; Kevane, 2020).[81]

Despite important land conflicts in areas with pastoralists making land policy extremely important to constituents, the model predicts that there may not be electoral responses in these regions. Because of the small population share of pastoralists in regions where they hold secondary access rights, a political party that prioritizes their rights in land policy is not electorally viable – either to win or to influence opposition policy – as their preferred policy redistributes away from the majority of voters. In figure 10, it is clear that municipalities with more than 4% of the population identified as pastoralist[82] do not respond to the announcement of treatment status with more parties contesting local elections. Table A11 confirms this; note that the statistically significant decrease in parties contesting in treatment municipalities in 2016 is almost precisely offset in those with some pastoralists. This lack of response by parties in areas with pastoralist conflicts is not due to the unimportance of land issues in these regions, but rather due to electoral viability.[83]

F   Robustness Checks

For most results reported in the paper, I have checked robustness to a variety of specification choices. There are several interesting dimensions to explore, which I present below.

F.1   Experimental Spillovers and Learning

It is also worth exploring whether political actors may be learning from other jurisdictions given the experimental setup of the decentralization. That is, politicians may observe another municipality implementing the land office, and its potential political rents, and change their behavior accordingly, rather than in direct response to the incentives. This type of mechanism could potentially explain the lack of significant differences between treatment and control areas in 2016: if control municipalities anticipate that they will be next to receive a land office, they may be presently anticipating future treatment and thus behaving similar to treated municipalities. As a result, the lack of difference I find would represent a change on the part of the 'control' group, rather than deteriorating effects

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[81]The smallest geographic unit consistently identified in the Integrated Public Use Microdata Series (IPUMS) is the region; small communes are collapsed for anonymity. One-tenth of the 2006 Census is publicly available through IPUMS.

[82]Data comes from the Spatially Interpolated Data on Ethnicity (SIDE), although the pattern is the same when using IPUMS Census data on language spoken. The 4% threshold was chosen as the median share of pastoralists in a municipality in order to maximize power (having two similarly-sized sub-samples), although results are robust to a variety of thresholds. Only three experimental-phase municipalities have more than 10% pastoralists, and none have a share close to 50% that would be considered electorally viable. This also means that these regions are not substantively different than other farming areas, except in that pastoralists move through them; their land quality and remoteness are similar to areas without a pastoralist minority presence.

[83]It would be extremely interesting to examine political responses in areas with electorally viable shares of pastoralists. However, the structure of pastoralist land use makes this difficult: in regions suitable for crop-growing, pastoralists will always be marginal and often transitory, while in areas that are unsuitable for agriculturalists, pastoralists dominate but do not face the same conflicts over secondary land access rights. In these pastoralist-dominated areas, other dimensions of land conflicts may become politically important, although such conflicts are not part of the experimental sample.
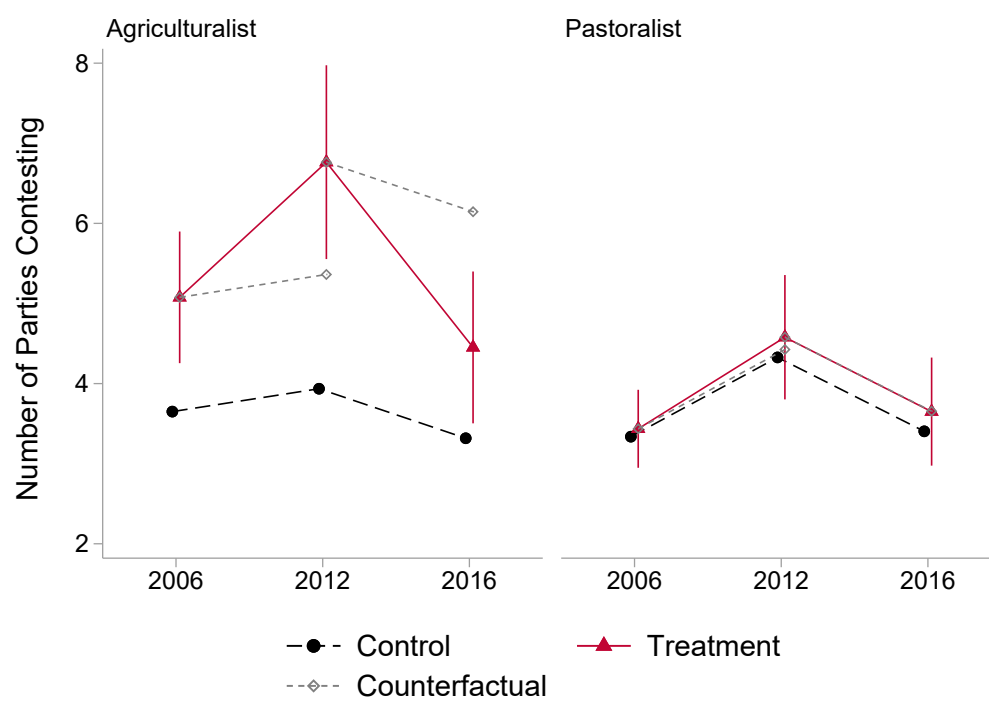
Figure 10: Areas with some pastoralists do not show strong electoral responses to treatment

VARIABLES	(1) Parties Contesting	(2) Parties Contesting	(3) Parties Contesting
Treatment	0.884	1.229**	1.341**
	(0.601)	(0.495)	(0.501)
Some Pastoralists	-0.662	0.462	1.534*
	(0.610)	(0.680)	(0.755)
Treatment*Some Pastoralists	-0.651	-1.205**	-1.328**
	(0.857)	(0.550)	(0.566)
2012	0.286	0.286	0.286
	(0.621)	(0.546)	(0.546)
Treatment*2012	1.402	1.402*	1.402*
	(0.850)	(0.728)	(0.728)
2012*Some Pastoralists	0.733	0.720	0.708
	(0.870)	(0.703)	(0.703)
Treatment*2012*Some Pastoralists	-1.278	-1.265	-1.252
	(1.217)	(0.891)	(0.889)
2016	-0.522	-0.601	-0.614
	(0.633)	(0.394)	(0.395)
Treatment*2016	-1.791**	-1.712***	-1.698***
	(0.859)	(0.570)	(0.570)
2016*Some Pastoralists	-0.430	-0.339	-0.312
	(0.879)	(0.511)	(0.509)
Treatment*2016*Some Pastoralists	1.814	1.723**	1.696**
	(1.223)	(0.748)	(0.745)
Constant	3.929***	3.347***	2.786***
	(0.439)	(0.483)	(0.482)
Observations	175	175	175
R-squared	0.231		0.410
Pair FE	No	No	Yes
Cluster SE	None	Pair	Pair
Number of comp		29	29

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Data sources: CENI Electoral Returns & SIDE

Table A11: Areas with Pastoralists do not see larger increases in parties contesting in response to treatment

in treatment municipalities.' This could indicate that private rents, which politicians can expect to continue after 2016, do remain important in party decisions.

I explore whether municipalities learn from each other in two ways. First, in column (1) of table A12, I interact year and treatment dummies with a dummy for municipalities in the same province as a land office location from Phase I of the MCC rollout.[84] It may be that local actors in other municipalities observed this earlier implementation, allowing them to (for example) foresee the political benefits of controlling land offices and therefore decide to run for office. This learning would likely be stronger in municipalities near Phase I municipalities. I do not find statistically significant differences in responses by political parties, although I begin to lose power when splitting the sample this way.

More important, however, is to consider whether the fact that treatment and control municipalities are statistically indistinguishable in 2016 (on most measures) is due not to treatment effects dissipating, but rather that control municipalities are beginning to anticipate their own treatment, and thus behaving more like treated areas. One way to test this is to compare the behavior in control municipalities with that in municipalities outside of the study over time. In columns (2) and (3) of table A12, I regress the number of parties contesting a given municipal election on treatment status (phase II treatment, phase II control, or non-study) and year, clustering standard errors at the province level. In column (3), I also include province-fixed effects, as there are no experimental pairs for municipalities outside of the phase II study. Interestingly, this shows a positive and significant effect for control municipalities in 2016, similar to the effect seen in treatment municipalities in 2012 when they were anticipating treatment.

Together, these results indicate that control areas were beginning their own contests in anticipation of future offices (driven by both private rents and constituent welfare), so politicians in treated municipalities may not have entirely given up on ongoing rents from existing land offices. However, this response in the control group does not seem to be driven primarily by those municipalities slated to receive land offices through other donor projects in the near future, as seen in columns (4) and (5).[85]

F.2   Alternate measures of Competitiveness

Although Golosov's method of computing the effective number of parties is preferable when there is a dominant party (Golosov, 2010), the more traditional Laakso & Taagepera formula shows similar results (including the lack of significant differences between treatment and control municipalities in any year) in table A13.

Another way to look at the competitive nature of local elections is to take advantage of a constitutional clause on the funding of political campaigns requiring all parties pay a deposit to be included on the ballot, which entitles them to some public campaign funding. If they receive 10% of votes in the election, then they are reimbursed their deposit. Although this deposit is not large for

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[84]Recall that there was a first pilot phase of the RLG project, which implemented land offices in 17 priority municipalities.

[85]These municipalities may have had some knowledge of future interventions, although I have not found any pre-election announcements of these locations.

	(1)	(2)	(3)	(4)	(5)
	Parties	Parties	Parties	Parties	Parties
VARIABLES	Contesting	Contesting	Contesting	Contesting	Contesting
Control		-1.459**	-2.511*	-1.582**	-2.089***
		(0.706)	(1.255)	(0.726)	(0.764)
Treatment	0.914	-0.832	-1.818*	-1.090*	-2.195*
	(0.578)	(0.553)	(1.080)	(0.647)	(1.273)
Phase I Province	-0.704				
	(1.027)				
Treatment*Phase I Prov	-0.377				
	(0.712)				
Office in 2017				-1.491**	-1.955*
				(0.643)	(1.139)
Control*Office in 2017				0.926	-1.353
				(0.717)	(1.999)
2012	0.567	0.711***	0.445	0.719***	0.403
	(0.396)	(0.264)	(0.404)	(0.275)	(0.451)
Control*2012		-0.0555	0.171	-0.0369	0.279
		(0.342)	(0.464)	(0.336)	(0.499)
Treatment*2012	0.683	0.723*	0.988*	0.715*	1.031*
	(0.643)	(0.403)	(0.516)	(0.410)	(0.556)
2012*Phase I Province	0.0997				
	(0.691)				
Treatment*2012*Phase I Prov	0.206				
	(0.919)				
2012*Office in 2017				-0.161	0.156
				(0.459)	(0.429)
Control*2012*Office in 2017				-0.0366	-0.806
				(0.903)	(0.755)
2016	-0.578	-1.267***	-1.276***	-1.323***	-1.335***
	(0.378)	(0.177)	(0.178)	(0.207)	(0.207)
Control*2016		0.515**	0.531**	0.563*	0.549*
		(0.259)	(0.246)	(0.316)	(0.309)
Treatment*2016	-0.505	-0.399	-0.390	-0.344	-0.332
	(0.545)	(0.449)	(0.449)	(0.459)	(0.458)
2016*Phase I Province	-0.289				
	(0.500)				
Treatment*2016*Phase I Prov	-0.684				
	(0.728)				
2016*Office in 2017				0.370	0.382
				(0.276)	(0.275)
Control*2016*Office in 2017				-0.237	0.230
				(0.519)	(0.604)
Constant	3.957***	4.833***	5.265***	5.073***	5.596***
	(0.614)	(0.702)	(0.406)	(0.794)	(0.574)
Observations	175	990	990	990	990
R-squared	0.309		0.079		0.120
FE	Pair	None	Province	None	Province
Cluster SE	Pair	Province	Province	Province	Province
Number of Clusters		45	45	45	45

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Data source: CENI Electoral Returns

Table A12: Little learning from Phase I, but control areas may be anticipating treatment in 2016

VARIABLES	(1) Effective # Parties (Votes)	(2) Effective # Parties (Seats)	(3) Effective # Parties (Votes)	(4) Effective # Parties (Seats)
Treatment	0.0122	-0.110	-0.00222	-0.0631
	(0.145)	(0.117)	(0.106)	(0.0931)
2012	0.457***	0.188*	0.282***	0.133
	(0.130)	(0.104)	(0.0979)	(0.0892)
Treatment*2012	0.251	0.0340	0.152	-0.0103
	(0.182)	(0.117)	(0.117)	(0.0915)
2016	-0.148	0.114	0.00726	0.104
	(0.132)	(0.125)	(0.111)	(0.109)
Treatment*2016	0.0521	0.281*	0.124	0.235
	(0.187)	(0.151)	(0.153)	(0.143)
Constant	2.156***	1.624***	1.623***	1.408***
	(0.0808)	(0.0752)	(0.0645)	(0.0605)
Observations	175	175	175	175
R-squared	0.229	0.204	0.221	0.169
Number of comp	29	29	29	29
Pair FE	Yes	Yes	Yes	Yes
Cluster SE	Pair	Pair	Pair	Pair
Measure	Laasko & Taagepera	Laasko & Taagepera	Golosov	Golosov

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Data source: CENI Electoral Returns

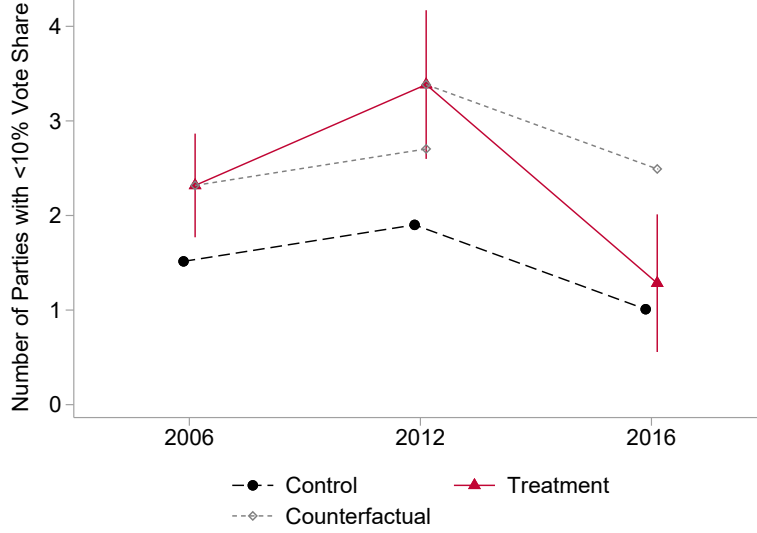Table A13: Two measures of effective numbers of parties

Figure 11: Parties entering in response to treatment in 2012 fail to reach the 10% vote share for reimbursement

municipal elections, it may be economically substantial in rural areas. Therefore, we can consider the number of parties that fail to reach this 10% threshold as being electorally uncompetitive, with results reported in column (4).

When looking at either of these measures, although there is no statistical significance for the positive difference between treatment and control in 2012, there is a larger decrease in 2016 for treatment municipalities. A graphical examination of these results in figure 11 shows a similar pattern to that seen in the number of parties, where treatment municipalities have more parties that fail to reach the 10% vote share threshold in the 2012 election. Therefore, although more parties compete in elections, it seems clear that they largely do not present a serious challenge to the dominant parties.

F.3 CDP Performance

Although I showed above that the previously-ruling party, the CDP, was more likely to contest elections in 2016 in those municipalities which had received land offices, despite a large drop in the share of municipalities they contest nationwide, it is interesting to see if there is any difference in voter responses to this party due to treatment. However, a simple regression with the vote share won by the CDP ignores the extensive margin: that is, the outcome is only non-zero in municipalities where the CDP chose to run. In order to examine the response of the CDP's vote share to treatment, then, I must use a method to account for the extensive margin which determines whether the outcome of interest is observed: that is, whether the CDP contests. A Heckman selection model explicitly models this extensive-margin 'selection' decision, as well as the performance on the outcome of interest. It requires, however, at least one variable to influence the outcome but not

participation, so as to separately identify the two equations. I use the CDP's incumbency as this variable: although normally incumbent parties find it easier to run again, using the levers of state for their own campaign purposes, the 'special delegations' that took over municipal governance in the aftermath of the 2014 unrest mean that the winner of the 2012 elections was not actually in power during the 2016 election campaign. However, Lierl and Holmlund (2019) demonstrate that voters do favor the incumbent party in 2016, as they have more information about their performance. Therefore, it seems reasonable that the vote share received by the CDP will depend to some extent on whether the CDP was incumbent. The results from the Heckman model are shown in columns (3) - (5) of table A14. However, in part because of the small sample size, these models are unstable and in some variations do not converge. The inclusion of the number of parties makes the model stable, and is therefore included.

When I use the Heckman model, I find that there are no significant differences between CDP vote share in treatment and control municipalities, before or after treatment. Therefore, although the party seems to be responding to treatment, it may be that less-informed voters are unable to attribute the land offices to a particular party (consistent with Lierl and Holmlund (2019)'s findings that voters know little about local government performance, even on regularly-used services), or that they do not see the land office as valuable enough to reward politicians for.

F.4   Alternate Dimensions of Heterogeneity

Importantly, when looking at heterogeneity in treatment effects, I created dichotomous groupings based on continuous variables (distance to urban centers, as well as ethnic or linguistic-based population shares). The results presented above are broadly robust to a variety of thresholds, although some splits involve relatively small groups which affects statistical significance. Figure 12 shows the mean travel time in minutes to an urban center for each municipality in the country; figure 13 shows the percentage of the population in each municipality identified by SIDE as belonging to a pastoralist ethnic group. Table A15 presents results from a variety of distances to cities defined as 'near-urban'; the significant interaction effect appears robust to these different bandwidths.

Table A16 looks at treatment heterogeneity with different definitions of areas containing some pastoralists. Columns (1) and (2) use the Spatially Interpolated Data on Ethnicity; column (1) uses the median value of the ethnic share of pastoralist groups, 4%, to define 'more-pastoralist' areas, while column (2) uses a more restrictive 10% share which only 5 municipalities meet. Columns (3) and (4) use the linguistic definition from IPUMS Census data, with (3) cutting at the median (5%) and (4) splitting at 10% (again, only 5 municipalities in the experimental phase meet this condition). Results are broadly consistent between the two definitions of pastoralists, although treatment effects do seem stronger when using a more restrictive definition (consistent with the explanation proposed above, that appealing to small pastoralist groups in a community is not a winning electoral strategy, but more so as this group increases in size).

Additionally, there could be some concern that near-urban areas face different secular trends in the political environment that the heterogeneous treatment effects analysis is picking up, apart from the treatment in question. However, figure 14 shows that despite different levels in the number of

VARIABLES	(1) CDP Contest	(2) CDP Vote Share	(3) CDP Vote Share	(4) CDP Contest	(5) /
Treatment	0.00407	0.0226	0.0370	0.0551	
	(0.00394)	(0.0465)	(0.0431)	(0.752)	
2012	0.00488	-0.0892***	-0.0826**	-0.718	
	(0.00505)	(0.0315)	(0.0394)		
Treatment*2012	-0.00488	-0.0210	-0.000751	-0.193	
	(0.00505)	(0.0444)	(0.0488)	(1.170)	
2016	-0.468***	-0.417***	-0.360***	-7.086	
	(0.0973)	(0.0325)	(0.0536)		
Treatment*2016	0.234**	0.0611	0.0282	0.649	
	(0.106)	(0.0441)	(0.0538)		
Number Parties			-0.0243**	0.885***	
			(0.0111)	(0.277)	
CDP Incumbent			0.00963		
			(0.0344)		
athrho					-0.0791
					(0.640)
lnsigma					-2.131***
					(0.0624)
Constant	0.997***	0.609***	0.749***	4.910	
	(0.0229)	(0.0237)	(0.0448)		
Observations	175	175	175	175	175
R-squared	0.354	0.740			
Number of comp	29	29			
Pair FE	Yes	Yes	Yes	Yes	Yes
Cluster SE	Pair	Pair	Pair	Pair	Pair
Model	Linear	Linear	Heckman	Heckman	Heckman

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Data source: CENI Electoral Returns

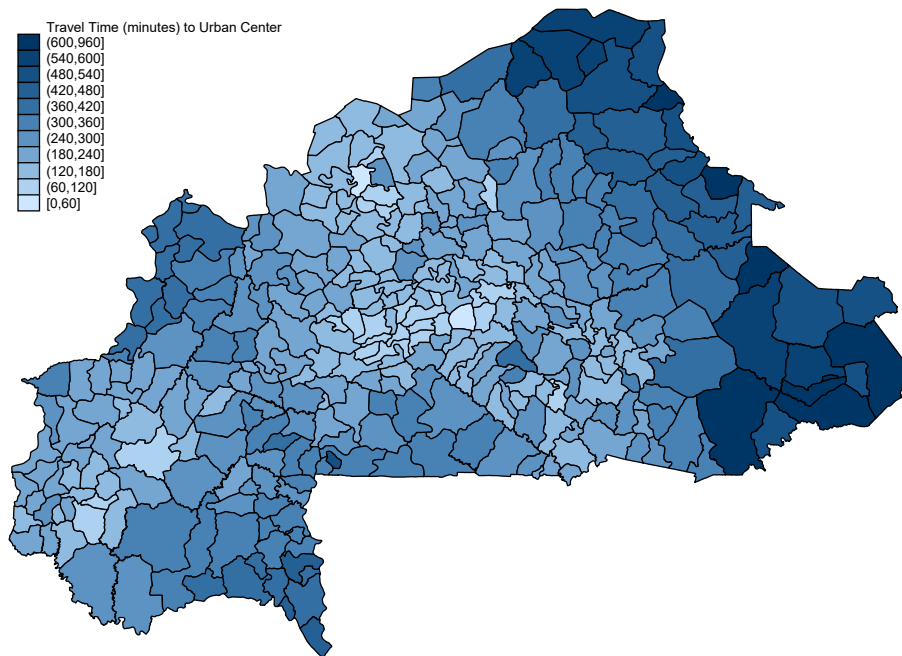Table A14: CDP Performance on the extensive and intensive margin

Figure 12: Travel time in minutes to urban centers
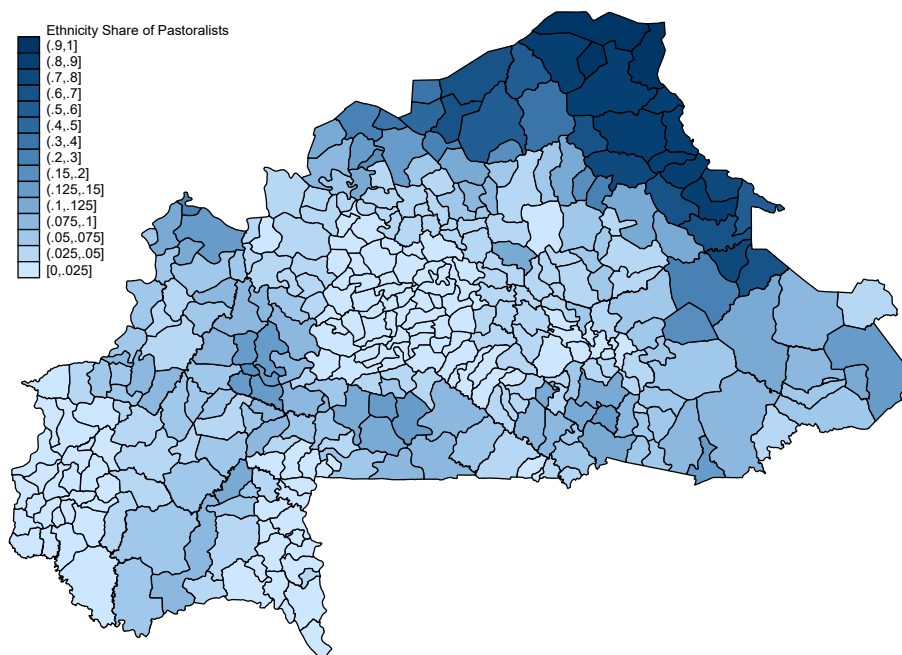
Figure 13: Ethnicity share of pastoralist groups

VARIABLES	(1) Parties Contesting	(2) Parties Contesting	(3) Parties Contesting
Treatment	0.431	-0.0899	-0.250
	(0.348)	(0.290)	(0.327)
Near-Urban	0.671	-0.888	-0.690
	(0.512)	(0.567)	(0.631)
Treatment*Near-Urban	1.569**	2.025**	1.407**
	(0.587)	(0.742)	(0.602)
2012	0.581	0.664	0.207
	(0.362)	(0.411)	(0.428)
Treatment*2012	0.678	0.547	0.611
	(0.435)	(0.457)	(0.461)
2012*Near-Urban	1.419***	-0.0636	0.682
	(0.362)	(0.784)	(0.651)
Treatment*2012*Near-Urban	0.322	0.671	0.290
	(1.020)	(0.974)	(0.793)
2016	-0.649**	-0.697**	-0.281
	(0.244)	(0.274)	(0.280)
Treatment*2016	-0.536	-0.145	0.0988
	(0.368)	(0.316)	(0.369)
2016*Near-Urban	-2.351***	-0.103	-0.719
	(0.244)	(0.580)	(0.441)
Treatment*2016*Near-Urban	-2.464***	-2.145***	-1.625**
	(0.563)	(0.695)	(0.624)
Constant	3.561***	3.890***	4.014***
	(0.243)	(0.290)	(0.386)
Observations	175	175	175
R-squared	0.421	0.405	0.378
Number of comp	29	29	29
Pair FE	Yes	Yes	Yes
Cluster SE	Pair	Pair	Pair
Bandwidth	2 hours	3 hours	4 hours

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Data source: CENI Electoral Returns + AidData

Table A15: Stronger results near cities, although relatively robust to larger bandwidths

VARIABLES	(1) Parties Contesting	(2) Parties Contesting	(3) Parties Contesting	(4) Parties Contesting
Treatment	1.341**	0.758*	0.853	0.597
	(0.501)	(0.380)	(0.539)	(0.374)
Some Pastoralists	1.534*	-0.980**	-0.765	0.758***
	(0.755)	(0.419)	(0.978)	(0.203)
Treatment*Pastoralists	-1.328**	-0.175	-0.234	0.126
	(0.566)	(0.451)	(0.694)	(0.509)
2012	0.286	0.540	0.206	0.503
	(0.546)	(0.354)	(0.520)	(0.367)
Treatment*2012	1.402*	0.884*	1.486*	0.979**
	(0.728)	(0.476)	(0.746)	(0.473)
2012*Some Pastoralists	0.708	2.460***	0.948	1.497*
	(0.703)	(0.354)	(0.662)	(0.829)
Treatment*2012*Pastoralists	-1.252	-2.384***	-1.405	-1.979**
	(0.889)	(0.539)	(0.870)	(0.807)
2016	-0.614	-0.687**	-0.733*	-0.653**
	(0.395)	(0.254)	(0.403)	(0.266)
Treatment*2016	-1.698***	-1.121***	-1.882***	-1.125***
	(0.570)	(0.395)	(0.624)	(0.387)
2016*Some Pastoralists	-0.312	-1.313***	-0.0363	-0.847*
	(0.509)	(0.254)	(0.493)	(0.457)
Treatment*2016*Pastoralists	1.696**	2.371**	1.711**	1.958**
	(0.745)	(0.867)	(0.729)	(0.785)
Constant	2.786***	3.617***	3.931***	3.535***
	(0.482)	(0.231)	(0.555)	(0.230)
Observations	175	175	175	175
R-squared	0.410	0.310	0.342	0.299
Number of comp	29	29	29	29
Pair FE	Yes	Yes	Yes	Yes
Cluster SE	Pair	Pair	Pair	Pair
Measure	SIDE	SIDE	IPUMS	IPUMS
Threshold	4%	10%	5%	10%

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A16: Some differences in treatment heterogeneity depending on measure of pastoralism used
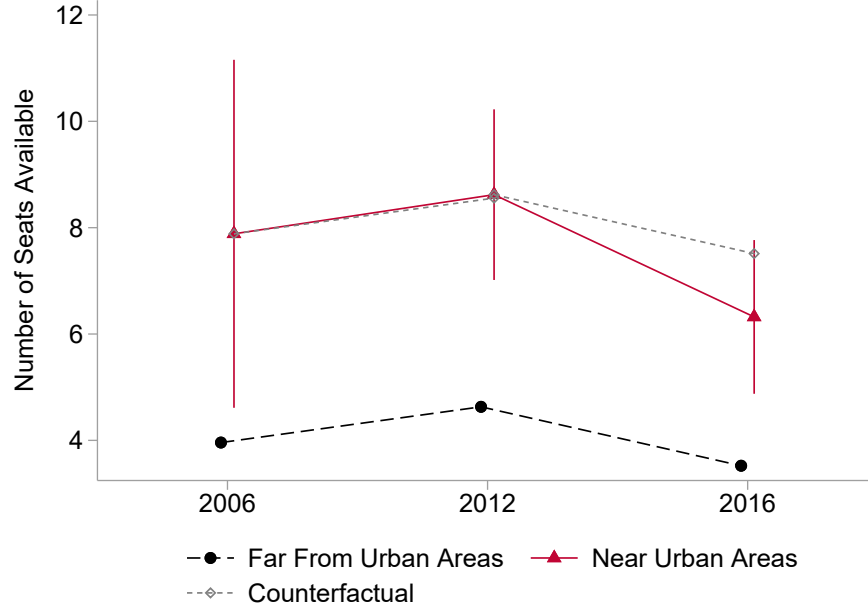
Figure 14: Similar Trends in Near-Urban and Rural Non-experimental Areas

parties contesting in near-urban and remote areas, they seem to have roughly similar trends.

F.5 Standard Indices of Local Government Performance

In the primary specifications in tables 7 and 9, I use the weighted scores for institutional capacity and service delivery computed by the SUPERMUN scorecard, which assigns points to each measure within each dimension, according to expert guidance on their relative importance to local government functioning. Although this aggregation method is less standard across contexts, it was developed for measuring local government performance in this context, and therefore is my preferred metric. However, I also create an inverse covariance-weighted index and examine these outcomes in tables A17 and A18 (Anderson, 2008). I use Phase II control municipalities in 2017 as the basis for standardization, as is common in this style of index. Results are qualitatively similar to the SUPERMUN scores: treatment does appear to insignificantly improve both institutional capacity and public service delivery, with stronger results (that are significant) in near-urban treated municipalities.

VARIABLES	(1) IC Index	(2) IC Index	(3) IC Index	(4) IC Index	(5) IC Index	(6) IC Index
Treatment	0.173	0.184	0.187	0.119	0.175	0.247
	(0.215)	(0.163)	(0.163)	(0.214)	(0.173)	(0.158)
Near-Urban				-2.047**	-1.706**	-1.578*
				(0.802)	(0.755)	(0.925)
Treatment*Near-Urban				1.855*	1.185	0.482***
				(0.935)	(0.803)	(0.158)
Constant	0.0768	0.0783	0.0693	0.150	0.138	0.122
	(0.155)	(0.190)	(0.0844)	(0.152)	(0.149)	(0.0973)
Observations	58	58	58	58	58	58
R-squared	0.011		0.046	0.120		0.165
Pair FE	No	No	Yes	No	No	Yes
Cluster SE	None	Pair	Pair	None	Pair	Pair
Number of comp		29	29		29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A17: A standard index of institutional capacity measures shows broadly positive but insignificant impacts of treatment, with somewhat stronger results in near-urban areas.

VARIABLES	(1) SD Index	(2) SD Index	(3) SD Index	(4) SD Index	(5) SD Index	(6) SD Index
Treatment	0.0509	0.0550	0.0579	-0.0848	-0.0871	-0.0997
	(0.302)	(0.256)	(0.257)	(0.307)	(0.246)	(0.250)
Near-Urban				-2.106*	-2.034***	-1.672
				(1.157)	(0.402)	(1.308)
Treatment*Near-Urban				2.737**	2.752***	2.655***
				(1.348)	(0.610)	(0.250)
Constant	-6.87e-09	-6.87e-09	-0.00353	0.0726	0.0701	0.0549
	(0.215)	(0.187)	(0.131)	(0.215)	(0.182)	(0.145)
Observations	59	59	59	59	59	59
R-squared	0.001		0.002	0.071		0.154
Pair FE	No	No	Yes	No	No	Yes
Cluster SE	None	Pair	Pair	None	Pair	Pair
Number of comp		29	29		29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A18: A standard index of public service delivery measures shows small positive but insignificant impacts of treatment in 2017, with stronger and significant impacts in near-urban areas.

Individual Staff Positions Filled

VARIABLES	(1) Secretary	(2) Registrar	(3) Accountant	(4) Revenue Manager	(5) Material Agent	(6) Statistical Agent	(7) Technical Agent	(8) Land Officer
Treatment	-0.159	-0.0341	0	0.205*	0.170*	-0.0341	0.205**	0.591***
	(0.0968)	(0.0924)	(0)	(0.104)	(0.0869)	(0.0924)	(0.0912)	(0.106)
Constant	0.827***	0.899***	1	0.472***	0.0659	0.899***	0.0994**	0.378***
	(0.0492)	(0.0470)	(0)	(0.0528)	(0.0442)	(0.0470)	(0.0464)	(0.0539)
Observations	59	59	59	59	59	59	59	59
R-squared	0.080	0.005		0.123	0.122	0.005	0.153	0.530
Number of comp	29	29	29	29	29	29	29	29
Pair FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster SE	Pair	Pair	Pair	Pair	Pair	Pair	Pair	Pair

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A19: Treatment municipalities hire additional land officers, as well as technical agents, material agents, and revenue managers.

VARIABLES	(1) IC Score	(2) IC Score	(3) IC Score	(4) IC Score	(5) IC Score
2016 Parties Contesting	1.422***			0.829*	1.453***
	(0.393)			(0.401)	(0.396)
2012 Parties Contesting		0.969**		0.00421	
		(0.380)		(0.418)	
2006 Parties Contesting			1.404***	1.203***	
			(0.276)	(0.288)	
Treatment					-1.706
					(1.578)
Constant	38.03***	38.54***	37.39***	35.22***	38.07***
	(1.714)	(2.341)	(1.235)	(2.282)	(1.724)
Observations	340	343	344	339	340
R-squared	0.038	0.030	0.080	0.090	0.040
Cluster SE	Region	Region	Region	Region	Region

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A20: Caption

F.6 Mechanisms for Improving Local Government Performance

The positive (albeit insignificant) impacts of treatment on measures of institutional capacity documented above could potentially be driven by two channels. First, It may be that the presence of a well-functioning, externally funded and monitored government office in a municipality such as the SFRs generate positive spillovers into other realms of local government. Alternately, the documented increase in political competition, particularly if new entrants are more concerned with constituent welfare, could be infusing new energy into municipal government, improving functioning more broadly. This latter mechanism is consistent with the additional council meetings held in treatment locales, which are distinctly political as opposed to merely administrative. However, I also examine in table A20 correlations in the number of political parties contesting elections in all municipalities in the country and the institutional capacity score. The positive relationship, particularly with the most recent elections shown in column (1), suggests that a more competitive political climate is associated with improved municipal institutional capacity, independent of the external role model of the land office. In column (5), the additional control for having received a land office has no additional explanatory power, once the political competition is controlled for, suggesting that spillovers are not the primary mechanism improving institutional capacity. This is consistent with the model's premise of publicly-motivated politicians, and provides a hopeful suggestion that decentralized political competition and control can improve government functioning.

F.7 Non-Clustered Robust Variance Estimation

Although the first column in each table in the main text calculates standard (non-robust) standard errors, this is not my preferred specification: the second and third columns in each table account for

dependence between municipalities in an experimental pair in their cluster-robust standard errors reported. Nevertheless, here I show that unclustered results are qualitatively similar to those computed using robust standard errors, using Stata's robust HC3 method which performs better than the HC2 default in small samples.

VARIABLES	(1) Parties Contesting	(2) Parties Contesting	(3) Parties Contesting	(4) Voter Turnout
Treatment	0.614	0.317	0.884	0.0143
	(0.461)	(0.437)	(0.702)	(0.0266)
Near-Urban		0.429		
		(5.722)		
Treatment*Near-Urban		2.683		
		(6.029)		
Some Pastoralists			-0.662	
			(0.578)	
Treatment*Some Pastoralists			-0.651	
			(0.905)	
2012	0.664	0.614	0.286	0.323***
	(0.429)	(0.439)	(0.631)	(0.0223)
Treatment*2012	0.770	0.646	1.402	-0.0440
	(0.697)	(0.642)	(1.046)	(0.0308)
2012*Near-Urban		1.386		
		(6.564)		
Treatment*2012*Near-Urban		0.354		
		(6.878)		
2012*Some Pastoralists			0.733	
			(0.883)	
Treatment*2012*Some Pastoralists			-1.278	
			(1.350)	
2016	-0.750*	-0.667*	-0.522	-0.258***
	(0.392)	(0.401)	(0.567)	(0.0225)
Treatment*2016	-0.917	-0.519	-1.791*	0.00117
	(0.624)	(0.590)	(0.963)	(0.0297)
2016*Near-Urban		-2.333		
		(3.225)		
Treatment*2016*Near-Urban		-2.481		
		(3.548)		
2016*Some Pastoralists			-0.430	
			(0.815)	
Treatment*2016*Some Pastoralists			1.814	
			(1.213)	
Constant	3.586***	3.571***	3.929***	0.482***
	(0.284)	(0.294)	(0.455)	(0.0181)
Observations	175	175	175	175
R-squared	0.154	0.317	0.231	0.710

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A21: Results are similar when using HC3-robust standard errors

VARIABLES	(1) Effective Parties (Votes)	(2) Effective Parties (Seats)	(3) Parties Winning No Seats	(4) Parties with $\leq 10\%$ Vote Share
Treatment	-0.00925	-0.0685	0.460	0.783*
	(0.108)	(0.0924)	(0.413)	(0.449)
2012	0.283**	0.132	0.257	0.411
	(0.109)	(0.0952)	(0.374)	(0.440)
Treatment*2012	0.151	-0.00896	0.309	0.655
	(0.159)	(0.125)	(0.616)	(0.690)
2016	0.0116	0.109	-0.893***	-0.893**
	(0.115)	(0.107)	(0.305)	(0.414)
Treatment*2016	0.120	0.230	-0.740	-1.207*
	(0.178)	(0.156)	(0.510)	(0.616)
Constant	1.625***	1.411***	1.207***	1.517***
	(0.0766)	(0.0691)	(0.264)	(0.270)
Observations	175	175	175	175
R-squared	0.180	0.140	0.149	0.186

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A22: Results are similar when using HC3-robust standard errors