When Political Competition Leads to Bad Outcomes: Evidence on the Role of Coordination Failure from a Developing Democracy *

Jessica Gottlieb † Katrina Kosec ‡

January 27, 2017

Abstract

Contrary to much of the empirical literature, we find that increases in political competition in one new democracy actually decrease the provision of publicly-provided goods. This result is not especially surprising in light of the widespread consensus that parties in new democracies often campaign on clientelistic transfers – which can be a substitute for programmatic outcomes. However, we find no evidence that this is driving the negative result in our empirical context of Mali. Instead, we find evidence for a novel mechanism: an increased likelihood of coordination failures among elected local councilmembers in more competitive districts. We develop a model that generates predictions about when the coordination costs induced by political competition are likely to result in worse publicly-provided goods outcomes: namely, when competition increases coordination costs at a relatively faster rate than it decreases political rent-seeking. In-depth interviews with local politicians inform our theory, while panel data on local publicly-provided goods provision and election outcomes and a large-scale phone survey of politicians allow for a rigorous test of the impacts of competition on publicly-provided goods outcomes and of the mechanisms driving these impacts. We expect coordination failures to be important in many contexts where local policymaking requires the engagement of a broad coalition of potentially diverse actors and where governance is relatively non-transparent.

*We thank Ken Opalo for excellent comments on an earlier draft. We are grateful to the DNCT and ODHD in Mali for generously sharing their data. For financial support, we thank the Center on Conflict and Development, a USAID Development Lab at Texas A&M University, and Innovations for Poverty Action's Peace and Recovery Seed Grant. We thank Brian Holtemeyer, Miguel Eusse and Gregory A. Klein for outstanding research assistance as well as Tidiani Diabaté and the team at IPA Mali for successful implementation of the qualitative data collection.

†The Bush School of Government & Public Service, Texas A&M University. jgottlieb@tamu.edu.

‡International Food Policy Research Institute. k.kosec@cgiar.org

The current state of the empirical and theoretical literature on the effect of political competitiveness in low- and middle-income democracies poses a conundrum. A number of studies find that, as in the US,[1] increases in political competition are good for welfare outcomes such as provision of publicly-provided goods.[2] However, others have argued that the primary dimension along which parties compete is not publicly-provided goods provision but rather clientelistic targeting due to the inability to make credible promises (Keefer, 2007), the efficiency of mobilizing bloc votes through group identities or traditional leaders (Chandra, 2004; Rojo et al., 2015; Gottlieb, 2016a), or the relative value of targeted benefits compared to that of programmatic investments Kitschelt and Wilkinson (2007). Indeed, empirical studies validate a positive correlation between political competition and clientelism or targeted transfers (Weitz-Shapiro, 2012; Wilkinson, 2007; Levitsky, 2007; Kopeckỳ, 2011). If publicly-provided goods and targeted benefits are substitutes rather than complements (Adida et al., 2016), then an increasingly competitive political system should lead to more targeted benefits and fewer publicly-provided goods as a direct result of competition being predicated on clientelistic targeting.

We examine the relationship between local political competitiveness and provision of publicly-provided goods in one low-income democracy, Mali, and find a strong negative effect. In other words, localities that see greater increases in political competition experience subsequent relative declines in local publicly-provided goods. However, we do not find evidence in support of the above candidate mechanism suggested by the literature – that private transfers are increasing to the detriment of publicly-provided goods. Rather, we find evidence

[1] A comparison across US states finds that low political competition is associated with low income growth and anti-growth policies (Besley et al., 2010).

[2] In Brazil, Arvate (2013) finds that increasing competitiveness in local races increases the supply of local publicly-provided goods such as student enrollment and immunization. Also in Brazil, De Janvry et al. (2012) find that the welfare effects of conditional cash transfer programs were better in localities where mayors were up for re-election. In the Philippines, Labonne (2013) finds that local incumbent politicians are electorally rewarded for their performance – implementing a conditional cash transfer program – only when they are operating in a competitive electoral climate. In Mexico, Díaz-Cayeros et al. (2014) compare outcomes in indigenous communities ruled by participatory forms of government to those ruled by often monopolistic political parties and find that provision of local publicly-provided goods increases faster in the former. And in India, Crost and Kambhampati (2010) find that provision of schooling infrastructure is higher in more competitive constituencies.

for a new mechanism: that increasing political competitiveness makes coordination, required for efficient governance, more difficult. Our focus on coordination problems among elected politicians was motivated by in-depth interviews with local politicians in Mali conducted for a qualitative data collection exercisethat sought to explain the unexpected negative relationship between competition and publicly-provided goods in the quantitative data.

To generate predictions about where we should expect to see such negative rather than positive effects of increased competition on publicly-provided goods, we develop a stylized model. Assuming that politicians can use the public budget on some combination of rent-seeking, private transfers, and publicly-provided goods, we demonstrate the countervailing effects of competition on a politician's ability to produce publicly-provided goods. On the one hand, competition should decrease political rent-seeking, thus increasing the available budget for investment in publicly-provided goods. On the other hand, competition increases the relative cost of producing publicly-provided goods because it increases coordination inefficiencies. Thus, we propose that increased political competition is more likely to have a negative impact on publicly-provided goods provision where: a) more diverse actors must coordinate to make policy, e.g. proportional representation systems, and b) governance is relatively non-transparent, such that competition is less likely to reduce rent-seeking.

Using a panel dataset of local electoral outcomes and local publicly-provided goods (specifically, schools, clinics, water boreholes, and roads) in Mali, we demonstrate a negative effect of competition on their provision. Our lagged dependent variable model mitigates important endogeneity concerns that arise from the possibility of reverse causality – or levels of local publicly-provided goods determining local levels of competitiveness. We then test two observable implications of our argument that provide evidence in favor of the coordination mechanism. First, we show that the negative relationship between electoral competition and local publicly-provided goods is more likely to obtain for goods that are more excludable and thus require greater coordination among members from geographically distinct parts of the district on what to build, how, and where to locate it. Second, we show that the negative

relationship is also more likely in places where the local council does not have a majority party and thus multi-party coalitions are required to make and implement local policy. With additional data on reported spending on private transfers from a survey of over 600 local councilmembers in Mali, we test and find no evidence in support of a plausible alternative explanation: because political competition is predicated on private transfers, increases in competition reduce provision of publicly-provided goods when these funds are instead used on private transfers.

We do not dismiss the plausibility of this alternative explanation. Rather, our theory accommodates it and describes when we should expect to see this mechanism driving the negative relationship between competition and publicly-provided goods. The more substitutable are private transfers and publicly-provided goods, the more likely competition will increase private transfers at the expense of publicly-provided goods. This does not rule out the additional effect whereby political competition raises coordination costs, thus increasing incentives to invest in private transfers rather than in publicly-provided goods, as these mechanisms are not mutually exclusive. In our setting, where private transfers do *not* increase with competition, we are better able to isolate and provide evidence in favor of the coordination mechanism.

This paper contributes to the literature on democratic development in poor countries by exposing a new, previously ignored relationship between electoral competition and the ability of politicians to effectively govern in between elections. Studies at the macro level of the effect of democracy on provision of publicly-provided goods are mixed, with some finding the expected positive relationship (Stasavage, 2005; Besley and Kudamatsu, 2006) and others finding a null or negative relationship in low-income countries (Boix, 2001; Ross, 2006). Our theory and findings provide one explanation for this discrepancy.

1 Political Competition and Publicly-Provided Goods

In this section, we first introduce a stylized model that yields testable predictions about the impact of political competition on provision of publicly-provided goods and private transfers. We then discuss evidence from the existing literature and our qualitative data that provides additional intuition for the theory.

Extending the standard model of political accountability

Standard models suggest that increasing political competition leads to superior publicly-provided goods provision. According to these models (e.g., (Besley, 2006; Fearon, 1999)), it is a credible threat from the opposition that disciplines incumbent behavior in office – and greater levels of political competitiveness increase the threat of election loss. Empirically, this should mean that increases in competition result in greater public expenditures, assuming such is preferred by the electorate. For example, Hatfield (2015) provides a model where competition for capital drives up the provision of productive publicly-provided goods. Similarly, Brueckner (2006) models political competition enhancing incentives to invest in human capital. Weingast (1995) and Hatfield and Padró i Miquel (2012) argue more generally that political competition can enhance incentives for long-term productive investments. Examining how such models hold up to data, Hatfield and Kosec (2013) show that more competitive jurisdictions in the United States have greater expenditures on publicly-provided goods and tend to grow faster.[3] In a developing country context, political competition could be perceived as increasing politician effort and decreasing corruption. For example, Ferraz and Finan (2011) use data from corruption audit reports to show that first term mayors misappropriate significantly fewer resources than do second term mayors since they face the prospect of reelection.

There are two factors which standard models importantly do not take into account (though other literature does), but which are important in country contexts like that of

[3]These are largely financed through higher taxes in such jurisdictions.

our empirical case, Mali (see Section 7 for a full discussion on scope conditions and generalizability). The first is the fact that political competition may not be predicated on the provision of publicly-provided goods, but rather—at least in part—on private transfers to citizens. The second is the fact that, while political competition may increase the amount of resources that can potentially fund publicly-provided goods (by reducing corruption and increasing policymaker effort), it may simultaneously exacerbate the costs of policy coordination and thus make public expenditures less efficient. This might manifest itself in more frequent and less productive meetings to decide on infrastructure projects or aspects of service provision, or in only partially-constructed (and thus useless) infrastructure projects—a rampant problem in developing countries (Williams, 2016).

Together, these two phenomena increase the likelihood that political competitiveness leads to reductions rather than gains in publicly-provided goods. As the production of publicly-provided goods becomes relatively less efficient, politician spending on such goods undergoes both an income effect (they can buy fewer publicly-provided goods than they could before) and a substitution effect (politicians re-direct money into more efficiently provided private transfers). Thus, coordination costs may very well lead to fewer and lower-quality publicly-provided goods even when more resources are allocated to publicly-provided goods.

Consider the following stylized model that incorporates insights from existing models of political competition while further incorporating these two additional factors. A local politician (mayor) overseeing an elected local council is assumed to be motivated both by being in office and by personal benefits she can obtain through misappropriation of public funds.[4] The politician has a fixed budget B that incorporates both transfer funds from higher levels of government as well as the value of all of her time. She can allocate it across three investments: keeping it for herself (misappropriation of funds and/or reduction of effort), s; providing it to voters in the form of direct, private transfers, t; and investing it in

[4]To make the model more tractable, we consider the politician as a unitary actor. Policymaking in our empirical case is a function of a council of actors, but for the purposes of the theoretical abstraction, we assume that the mayor bears all costs of coordination and behaves accordingly.

publicly-provided goods, p.

A production function translates investments into output. Both s and t have the feature that output equals investment; that is, $O_s(s) = s$ and $O_t(t) = t$. However, investments in p require the politician to coordinate with members of the local council, and such investments are accordingly subject to coordination inefficiencies. Specifically, $O_p(p) = \delta p$, where $\delta \in [0, 1]$ is a decreasing function of an exogenously determined level of political competition c—that is, $\delta = f(c)$. With more political competition, the same investment p thus results in fewer publicly-provided goods, O_p.

Coordination inefficiencies are unlikely to be of the same size for all publicly-provided goods. Some goods are easy to coordinate on as they are non-excludable and easy to share. Other goods, in contrast, present especially large coordination inefficiencies since they are highly excludable and hard to share. To capture this, we can consider that the politician further divides p across n different publicly provided goods, $p_1 \dots p_n$. For each good k, $\delta_k = f_k(c)$. Without loss of generality, suppose $\delta_k \in [0, 1]$ is decreasing in k, such that good p_1 is the least excludable (easiest to coordinate on) while p_n is the most excludable (hardest to coordinate on).

Motivated by existing literature, we assume s and thus O_s is strictly decreasing in political competition c. The politician then allocates these additional resources across t and p so as to maximize voter utility and thus the likelihood of reelection. Voter utility is described by the function $U = g(O_t, O_p)$.

From the setup, it is clear that the politician will have some optimal allocation of $B - s$ over t and p. However, as political competition increases, δ decreases and thus investments in p become relatively less attractive, while at the same time s is decreasing and so $B - s$ is increasing. The speed with which δ decreases relative to s will determine whether increases in political competition lead to increases in O_t and/or in O_p; this is an empirical question. However, the model yields several predictions:

H1 How increases in political competition c affect publicly-provided goods O_p depends on

the relative rate of change of δ and s. More precisely, as $\left|\frac{d\delta}{dc}\right|$ increases relative to $\left|\frac{ds}{dc}\right|$, increases in political competition are more likely to decrease O_p.

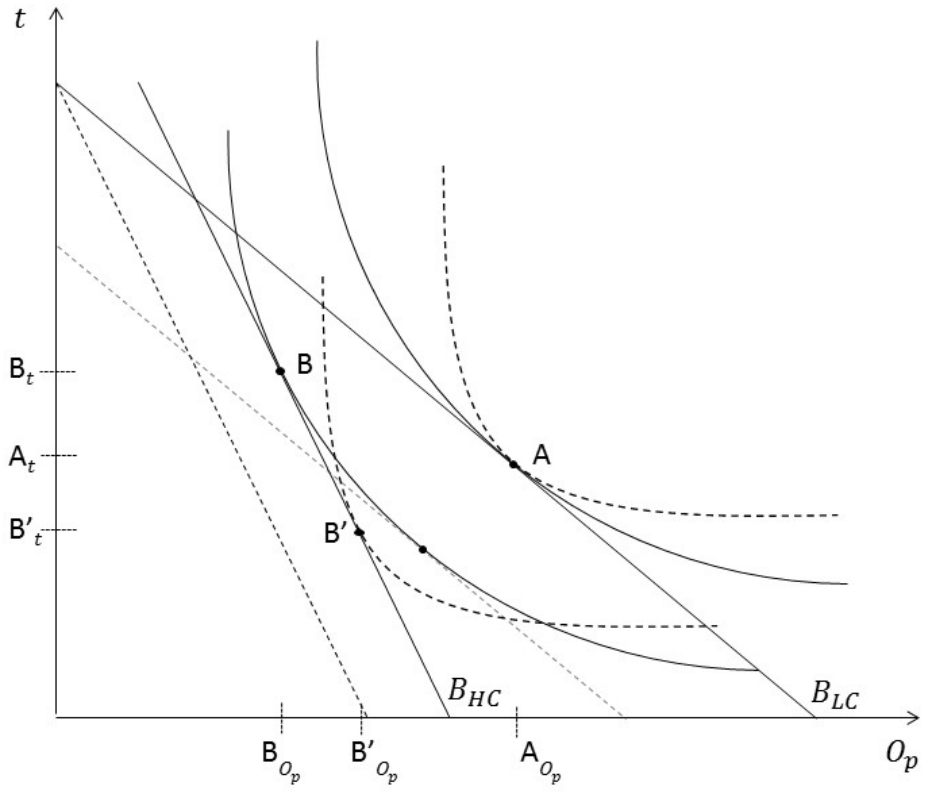
H2 If there are decreases in provision of publicly-provided goods O_p with increases in political competition c, the size of such decreases will be increasing in k, the degree of excludability (and thus difficulty of sharing) of the publicly-provided good.

The comparative statics prediction regarding the relative rate of change of δ and s in *H1* is depicted graphically in Figure 1. Here, we show the effect of an increase in competition on both O_p and O_t (i.e. t). The net effect on the budget constaint is represented by the move from B_{LC} to B_{HC}. In this example, the positive income effect produced by the decrease in s is swamped by the negative income and substitution effects produced by the decrease in δ. As a result, we see that the new budget's y-intercept indicates that the politician can now afford more private transfers t, but its x-intercept indicates that the politician can now obtain fewer publicly-provided goods, O_p. Of course, a greater decrease in s could move the budget line far enough rightward that both t and O_p are increased.

At a given level of c, s and δ, investments in private and publicly-provided goods, t and p, are substitutes because they both enter positively into the politician's budget. However, the elasticity with which one good can be substituted for another depends on voter preferences. For instance, voters may place exactly equal weight on both goods such that a relative change in price will lead to a complete substitution of the more expensive good for the less expensive one. Or, voters may place greater weight on one, or have some minimum threshold of the good that needs to be met before they would substitute one for another.

Given this, even if O_p decreases with competition, the effect on t is ambiguous. Depending on the relationship between the income and substitution effects generated by a decrease in δ, several outcomes may obtain. First, even when an increase in c results in a decrease in O_p, a politician may sufficiently increase t (because t is now relatively more efficient, and substitutable) such that we observe increasing outputs of private transfers O_t and decreasing outputs of publicly-provided goods O_p. Second, if private transfers and publicly-provided

Figure 1: Graphical representation of the effect of an increase in competition on publicly-provided goods and private transfers



Note: The gray dotted line isolates the income effect of increasing δ while the black dotted line shows the combined income and substitution effects. The budget line B_{HC} has the same slope as the black dotted line, but has moved outward to represent the positive effect on income of decreasing s.

goods are less substitutable, the negative income effect from decreasing δ can swamp the positive substitution effect such that a null or even negative effect on O_t obtains. The extent to which outputs of private transfers and publicly-provided goods are substitutable is another empirical question. This leads to a third hypothesis:

H3 The less substitutable are private transfers and publicly-provided goods, the greater the possibility that an increase in c (and subsequent decrease in δ) could simultaneously decrease O_p and decrease (or have no effect on) t and O_t.

Figure 1 demonstrates graphically how the nature of the relationship between the two goods can affect whether an increase in competition has a positive or negative effect on t as proposed in *H3*. The two sets of indifference curves represent more substitutable goods (solid lines) and less substitutable goods (dashed lines). Moving from point A (low competition) to point B (high competition), or from point A (low competition) to point B' (high competition), the effect on O_p is always negative. By contrast, in the case of the more substitutable goods, the effect of competition is positive ($B_t > A_t$); while in the case of the less substitutable goods, the effect of competition is negative ($B'_t < A_t$).

Competition, coordination and publicly-provided goods

Our decision to consider the linkages between competition and coordination failures is both motivated by our qualitative data and substantiated in several strands of existing literature. First, we describe what we mean by coordination in the context of governance by a council of actors. In producing local publicly-provided goods, coordination is required to choose the *type* of preferred good and its *location*. To the extent that there are differing opinions among the population and its political representatives on either dimension, failure to coordinate could result in a prolonged decision-making process and stalled provision of services, or worse, outright conflict and non-provision of services. Political competition, especially in the form of many fractionalized parties representing different groups and thus interests in the community, can make coordination more difficult. While related, this discussion diverges from the much written about topic of collective action and local provision of publicly-provided goods because the goods in our case are mostly not self-provided; the resources instead come mainly from outside and are not contingent upon local contributions. The strategic actors whose actions must be coordinated are further not individual community members but elected local government officials.

Existing literature

Two strands of literature support the idea that competition can exacerbate coordination failures in governance. First, a long tradition in American politics considers the phenomenon of vote trading or log-rolling in Congress whereby legislators representing different groups trade votes with one another to create sufficient coalitions to pass projects with narrow interest groups (Buchanan and Tullock, 1962). While such a market for votes can have the benefits of satisfying diverse preferences across the electorate, Weingast and Marshall (1988) describe the losses that accrue as a result of failures among parties to credibly commit. Namely, trading support for different pork projects necessarily implies noncontemporaneous benefit flows to each party and nonsimultaneous voting opportunities meaning that parties benefiting early will have an incentive to renege. In our case, local publicly-provided goods similarly need broad-based support among coucilmembers for successful production and completion. When councils are fractionalized as a result of competitive races, intra-council bargaining will suffer from similar problems faced by vote-traders in Congress. Williams (2016) shows that the particular nature of local provision of publicly-provided goods, with its many steps from policy decision to fund transfer to procurement to construction, increases the likelihood that coordination failures stymie the successful policy implementation – in this case, project completion.

Second, political concentration can in some cases lend itself to better public policymaking. In studying the practice of democracy in the Senegalese context, Schaffer (2000) has argued that voters do not maximize personal preference when participating in elections but rather engage as a means of reinforcing the bonds of community solidarity for collective rather than personal security. If the provision of local publicly-provided goods has historically relied upon consensus, coordination and collective action from within the community, then competitive elections may undermine the ability of community leaders to ensure collective social survival by generating rivalry among new or pre-existing social factions. For instance, Tsai (2007) describes how solidary groups that both encompass an entire village and embed the village

leaders stimulate better local publicly-provided goods provision by establishing norms of collective contribution and rewarding better leaders with higher moral standing. Schaffer (2000, p. 114) claims that this seemingly anti-democratic form of electoral participation that prizes consensus over conflict (referred to as *demokaraasi* in Senegal) is unsurprising in contexts like our empirical case of Mali, which are dominated by economic uncertainty and where "vulnerable electors use their votes to make their environment less precarious, whether by exchanging votes for material rewards or by solidifying bonds with religious leaders and community members."

Qualitative data

In conversations with local elected politicians in Mali (see Section 3.2 for a description of the data collection), we heard several insights that motivated us to consider coordination failures as a possible explanation for the negative relationship between political competitiveness and publicly-provided goods provision. Further echoing Schaffer's (2000) view that a strong democracy in such a West African context may be built on consensus rather than conflict, several politicians painted the political competitiveness of their commune in a negative light. One says negative campaigning can render the commune more competitive, implying the latter is a bad thing.[5] Another says competition is high because of aggressive parties which also suggests a negative attitude toward competition.[6]

In one commune that has become less competitive over time, a politician explains this "is the result of the population beginning to understand that politics is a competition that should be played out passively and not in disorder and aggressiveness."[7] The respondent also attributed the concomitant increase in health clinics to "good governance," which is especially notable given that he hails from an opposition party. In stark contrast, an opposition politician[8] in another commune blames recent decreases in public goods provision on the

[5]Respondent 19.
[6]Respondent 21.
[7]Respondent 94.
[8]Respondent 28.

mayor's failure to work for the development of the commune. He describes intense political competition there as cleaving along ethnic lines and says the mayor directs most public works to his coethnics – evidence of a challenge to coordination.

When asked what explains low levels of competition in their communes, only a few respondents pointed to negative reasons such as a lack of voter information or sophistication, while many more suggested the potentially performance-enhancing conditions under which consensus and coordination might arise – strong familial ties, well-organized communities and brokers, the dominant party having more finances and political power, and that strong incumbents breed loyalty. One respondent even explicitly said the development of coalitions among parties has led to a decline in competitiveness. In one commune[9] with decreasing competitiveness and increasing provision of publicly-provided goods, we found another example of the potential benefits of non-competition. Politicians suggested that the long history of a single dominant party operating in the commune is significant for constituents. Here again, even the opposition party attributed recent increases in publicly-provided goods to the mayor.

2 Political Context

Mali's decentralization of political authority to 703 commune governments allows us to study the relationship between local political competition and local publicly-provided goods provision holding institutional and cultural factors constant. Below, we describe how local governments are elected and how they raise and spend resources on local publicly-provided goods. Then, we marshal evidence from our interviews with politicians to describe the nature of party competition in Malian communes.

[9]Commune 13.

2.1 Electoral Context

Since 1999, local government councilors have been elected with five-year mandates. In each election, parties submit closed candidate lists and seats are accorded to parties based on proportional representation. The number of seats on a commune council ranges from eleven to forty-five, based on population, and in every commune an average of six parties compete for those seats. For the first three of these elections, the mayor and her bureau (several adjunct positions) were elected indirectly from among the commune councilors. The November 2016 elections, which were been postponed twice due to conflict in the North of the country, instituted direct mayoral elections for the first time.

Members of the commune bureau are given a small indemnity for their service and expected to manage the day-to-day affairs of the commune while the councilmembers are only required to participate in regular council meetings. While the mayor bureau members can set the agenda, policy decisions are subject to a full vote by the council. In the more than half of communes where no party won a clear majority, this means that coalitions among councilmembers and parties are required to make and implement policy.

There are a few regularities of Mali's local elections that are worth noting. First, as evidence of the importance of coalition politics, when the largest party has a plurality of seats rather than a majority, the mayor is more likely to come from one of the smaller parties. Second, incumbent mayors won in only 29% of communes in 2009. This is one piece of evidence of Mali's high electoral volatility. Another is rampant party-switching, not only by voters, but also by politicians. In our survey of more than 600 local politicians, about a quarter said they had switched parties at least once in their political career.

2.2 Intra-governmental Transfers

Public policy in each commune is made by a commune council. In addition to government subsidies, a small amount of tax revenue, and donor aid, councils receive about $30,000 per annum for use on community development projects from a government agency (the Agence

Nationale d'Investissement des Collectivités Territoriales), which represents the largest share of their budget. Communes comprise an average of 18 different villages, and these project funds typically allow them to select one village in which to build a community development project per annum. Our measure of publicly-provided goods will consider the aggregated number of these types of local public infrastructure projects within the commune. Given that project funds are distributed annually, the four-year lag between the election of a new council and our measure of publicly-provided goods provision should be sufficient to capture real changes in our publicly-provided goods measure.

Because the public financing of urban communes differs substantially from that of rural communes, we limit our sample to Mali's 666 rural communes. Urban communes are able to raise taxes on businesses and can profit from the use of local land by private companies which increases their budget as well as the stakes of local politics. In addition, the types of basic services that are important in rural areas and that comprise an index of publicly-provided goods we construct and call our public goods index are not necessarily the same in urban areas. For instance, unpaved roads are sought after in rural areas while paved roads are more likely in urban ones, and unpaved roads may be an inferior good.

2.3 Drivers of Competition

Here, we describe the nature of local political competition that emerges from our interviews with politicians. Common to many new democracies, competition is described both as being driven by programmatic concerns and by clientelistic ones. Programmatic strategies include developing projects in the commune and emphasizing past records of achievement. Clientelistic strategies include small transfers of money or goods (vote-buying) and cleavages along ascriptive characteristics that signal a greater likelihood of future targeted transfers. For instance, when asked what drives high levels of competition in their communes, politicians pointed to cleavages along ethnic, kin, and village lines. And as one politician said, "Voters

are only interested in money; it is very easy to influence them."[10]

Unsurprisingly given the country's very low score on the party system institutionalization index – the second lowest in Africa (Riedl, 2014), local politics is highly personalistic rather than disciplined by parties. Politicians suggested a key reason for this: getting a seat on the council is a way to personally enrich oneself and get access to information. The institution of closed-list proportional representation may incentivize politicians who are jockeying for high list positions to break off and form their own party where they can be at the top of the list. For instance, party reconfigurations resulting from personal ambitions and intra-party disputes have led to shrinking parties. One politician said party switching left supporters confused, another said a member of a dominant party broke off to form a popular independent party, and another said some members left to create a new party.[11] Such party fractionalization can contribute to coordination problems when the council must decide on and implement commune-wide policies.

3 Empirical Strategy and Data

In this section, we first describe our data and empirical strategy for the quantitative analysis that yields our main result with respect to the relationship between political competitiveness and provision of publicly-provided goods. We then describe our data collection strategy for our qualitative examination of the potential mechanisms driving the surprising result.

3.1 Quantitative Analysis

We employ a lagged dependent variable estimation strategy, using panel data on local elections (2004, 2009) and provision of local publicly-provided goods (2008, 2013) to test the effect of changes in electoral competitiveness on publicly-provided goods. Specifically, we

[10]Respondent 89.
[11]Respondents 7, 19, and 50.

estimate the following econometric specification:

$$PG_{i,2013} = \beta_0 + \beta_1 \Delta Competition_{i,2009-2004} + \beta_2 PG_{i,2008} + \gamma \mathbf{X}_i + \epsilon_i \quad (1)$$

where i indexes communes, $PG_{i,t}$ is a publicly-provided goods outcome in commune i in year t, $\Delta Competition_{i,2009-2004}$ is a measure of the change in the competitiveness of electoral races in commune i between 2004 and 2009, and $\mathbf{X}_i$ is a vector of control variables, described below. Standard errors are clustered at the cercle level to allow for arbitrary autocorrelation of errors among communes within a cercle; the average cercle contains 14 communes. This choice is motivated by the fact that there are instances of party organization at the cercle level that might influence political competition within the cercle – both because parties may have a higher-level administrative office at the cercle and because there are cercle-level councils that comprise representatives from all constituent communes.

Local elections are supposed to be held every five years, and have thus far taken place in 1999, 2004, 2009, and 2016.[12] Thus, examining changes between the 2004 and 2009 elections captures the effects of the most recent changes for which we have data in the competitiveness of local elections in Mali. Data on publicly-provided goods are available in two years: 2008 and 2013. Having publicly-provided goods data from 2013 is useful since by this time—four years after the 2009 elections—one would expect any increases or decreases in electoral competitiveness between the two elections we consider to have impacted publicly-provided goods provision. Having publicly-provided goods data from 2008 is useful as this captures the state of publicly-provided goods provision at the very end of the first administration, and thus immediately before any changes in electoral competitiveness brought about by the 2009 elections.

Our econometric specification effectively allows us to understand how changes in electoral competitiveness affect the state of publicly-provided goods provision four years later, while

[12]The 2014 elections were postponed several times due to continued insecurity and finally took place in November 2016.

taking into account the starting point of publicly-provided goods provision. We show that our results are robust to inclusion or exclusion of several controls which we add iteratively. Among these is a control for electoral volatility, described below; robustness to inclusion of this control increases our confidence that our results are due to changes in electoral competition itself and not due to the correlation of competition with electoral volatility.

With panel data, we are able to mitigate some endogeneity concerns that would be present in a cross-sectional regression; namely, that higher levels of competitiveness may be a result of higher levels of prior publicly-provided goods provision. Our lagged dependent variable specification, where we examine changes in competitiveness prior to the measurement of the outcome variable, limits the concern that our findings are driven by reverse causality.[13] To further reduce threats of omitted variable bias, e.g. that some unobserved characteristic such as faster economic development is driving both increases in competitiveness and increases in publicly-provided goods, we considered a first differences approach, which identifies within-locality trends. However, such a specification requires a no differential trends assumption that we do not believe is reasonable in our case. In particular, places that have already achieved high publicly-provided goods levels likely have different pre-trends with respect to the evolution of publicly-provided goods relative to places with lower initial publicly-provided goods levels. Given this concern, the lagged dependent variable model is optimal as it allows us to maintain the benefit of looking at changes in the independent variable and its effects on the dependent variable at different initial levels of publicly-provided goods, e.g. allowing localities to be on different pre-trends.

We thus always include the lagged (2008) level of our Anderson Index of publicly-provided goods provision as it flexibly allows the level of publicly-provided goods provision in 2013 to vary according to its initial level in 2008, prior to the 2009 elections. For example, communes that already have a great deal of infrastructure may be more accessible and thus precisely the places where new infrastructure is built. Or, conversely, one might expect that communes

[13]Notably, we get substantively different results when we use a cross-sectional regression with only one year of election and publicly-provided goods data.

with relatively little infrastructure initially are more likely to see new infrastructure built due to pent up demand.

Independent Variables

We measure electoral competitiveness in two ways: First, using a Herfindahl-Hirschman Index (HHI) of political concentration, and second, considering the margin of victory of the winning party (i.e. the difference in seat shares between the most popular and the second most popular parties). We use both measures of political competitiveness as each captures a different dimension of the potential coordination problems that might arise on the council. HHI effectively captures party concentration. The more concentrated are political parties, the more easily they should be able to govern effectively – either because one party has a clear majority, or because a concentrated plurality party is better able to form durable coalitions. Margin of victory captures the relative bargaining power of the two largest parties. If the margin is large, then the dominant party will be better able to railroad through policymaking decisions. However, if the margin is small, the dominant party will be more likely to be held hostage by the second largest party.

As we measure electoral competitiveness as a change between two elections (2004 and 2009), for both measures we subtract the 2004 level from the 2009 level. For each commune i and for each of the two election years we consider, the HHI is constructed by summing the squared seat shares (s_p) of all parties $p \in \{1, ..., n\}$ that competed in the commune counsel elections:

$$HHI_i = \sum_{p=1}^{n} s_p^2 \tag{2}$$

Since $s_p \in [0, 1] \forall p$, $HHI_i \in [0, 1]$. A higher value of HHI_i indicates greater political concentration, and thus less electoral competition. $HHI_i = 1$ when a single party wins all seats, and adding an additional party which wins seats would lower HHI_i. Additionally, in two communes with the same number of parties competing, the commune with the closest to an "even" split of the votes (e.g. 50 percent each in the case of 2 parties, 33.33 percent each in

the case of 3 parties, etc.) would have the lowest HHI_i of the two.

Margin of victory is constructed by simply taking the difference in the seat share between the two largest parties on the council.[14] Similarly to HHI, a greater margin of victory indicates *less* electoral competitiveness.

Dependent Variable

We measure publicly-provided goods provision in 2013, our dependent variable, using infrastructure data on the number of each of a bundle of local publicly-provided goods present in the commune: schools, clinics, boreholes, and roads. We combine these into a summary index, or Anderson Index, using methods described by (Anderson, 2008). The index standardizes and mean-centers each of the four composite variables and then combines them into a single index using an inverse covariate weighted average. We call this our public goods index. As a robustness check, we additionally consider an alternate public goods index: one that uses the same four composite variables and carries out a principal components analysis (PCA). We take the first principal component emerging from this analysis as our PCA public goods index.

Control Variables

We include a number of control variables which we iteratively add to ensure that our results are robust and not sensitive to the particular control set used.

First, we control for a measure of electoral volatility, which we capture using a Pederson Index (PI). Given the high volatility of Mali's political system caused, in part, by frequent party switching by candidates, we worried that our measures of competitiveness might be capturing volatility in addition to partisan pressures. In theory, these constructs could have opposite effects on governance, e.g. partisan pressures in a competitive system may lose force when party attachments are unstable. For each commune i and for each of the two

[14] Results are robust to using vote share instead of seat share in both instances.

elections t on which we focus (2004 and 2009), we thus construct a $PI_{i,t}$ by summing the absolute value of the difference in the seat shares (s_p) in the election of period t and that of period $t-1$ (the previous election)[15] of all parties $p \in \{1, ..., n\}$ that competed in either election, and then dividing by two:

$$PI_{i,t} = \frac{\sum_{p=1}^{n} |s_{p,t} - s_{p,t-1}|}{2} \tag{3}$$

Since $s_p \in [0,1] \forall p$, $\sum_{p=1}^{n} |s_{p,t} - s_{p,t-1}| \in [0,2]$, and thus $PI_{i,t} \in [0,1]$. A higher value of $PI_{i,t}$ results when there are more individual vote transfers or when there is party entry and exit, and indicates greater electoral volatility. When $PI_{i,t} = 0$, parties have the exact same distribution of seats across the two consecutive elections. When $PI_{i,t} = 1$, all parties that won seats in a given election fail to obtain any seats in the next.

Second, we control for the change in logged population between 1998 and 2009. Doing so explicitly allows communes with different population trends leading up to the 2009 elections to have different publicly-provided goods outcomes four years after the election. For example, communes that were already growing rapidly leading up to the 2009 elections may be experiencing an upward trend in development. To the extent that such trends are correlated with changes in electoral competition between the 2004 and 2009 elections, we might be worried about omitted variable bias if we fail to include these controls.

Third, we control for the overall level of development (or growth in the level of development) in a commune by including measures of the state of publicly-provided goods provision by other levels of government. Specifically, we focus on two measures for which we have consistent commune-level data over time despite the goods being provided by the central government: kilometers of paved roads and number of sources of electricity. We try controlling for access to these goods in two ways: first, by controlling for their 2008 levels, and second, by controlling for changes in these variables between 2008 and 2013. Controlling for these variables in their level form allows initial levels of development to influence

[15] When t =2004, the previous election is the 1999 election. When t =2009, it is the 2004 election.

2013 publicly-provided goods provision by communes, while controlling for changes in these variables allows communes on different growth trends in development to see different 2013 publicly-provided goods provision by communes.

3.2 Qualitative Analysis

To better understand the mechanisms that produced the relatively surprising finding in the quantitative data, we collected rich narrative data from local politicians in a targeted sample of communes. In summer 2016, we interviewed 111 locally elected councilors from 24 communes in Mali. These communes were randomly sampled from 16 different commune types to provide maximum variability in responses on our constructs of interest. First, we created quartiles for measures of change in electoral volatility and competitiveness (using the Herfindahl index). Then, we selected one or two communes at random from the 16 unique combinations of our two categorical variables. In each of the 24 sampled communes, we then used prior election and councilmember data to identify parties and politicians to interview.

We targeted at least one current or former commune councilor from each of the following party types:

- Dominant party: Party that won the most votes in either year
- Opposition party: Party that won the second most votes in either year
- Marginal party: Party that was not one of the top two parties in either year

In each party, we aimed to interview the politician that was highest on the party list, as they would presumably have the best information about their party.

4 Effects of Competition on Publicly-Provided Goods

Table 1 presents results from estimating Eq. (1), where we measure electoral competition with the HHI. We estimate four stepwise regressions, starting with inclusion of only our

measure of change in electoral competition and the lagged value of publicly-provided goods provision (column 1). We then add our difference in volatility measure (columns 2). Finally, we add to the specification of column 2 both the difference in logged population and the initial levels of kilometers of paved roads and the number of sources of electricity (column 3). Finally, we add to the specification of column 2 both the difference in logged population and the differences in kilometers of paved roads and in the number of sources of electricity (column 4). We find a consistent story across all four specifications; a standard deviation decrease in the HHI of political concentration between elections (and thus an *increase* in electoral competition) is associated with between a 0.042 and a 0.049 standard deviation decrease in an Anderson Index of publicly-provided goods provision.[16] To put a standard deviation decrease in the HHI between the two elections into perspective, going from five parties each winning 1/5 of the vote to three parties with a 50–25–25 split of the vote would yield just over a 1.1 standard deviation increase in the HHI. We thus interpret our findings as a modest but robust decrease in the quantity of publicly-provided goods provided by commune governments due to greater electoral competition.

A similar story emerges when we instead measure electoral competition using the margin of victory of the winning party, as shown in Table 2. Here, a standard deviation—or 23.4 percentage point—decrease in the vote margin of the winning party between elections (and thus an *increase* in electoral competition) is associated with between a 0.058 and a 0.062 standard deviation decrease in an Anderson Index of publicly-provided goods provision.[17] One again, this is evidence of a modest but robust decrease in the quantity of publicly-provided goods provided by commune governments due to greater electoral competition.

[16] A standard deviation decrease in the HHI difference is a 0.156 unit decrease; multiplying this by the minimum (0.208) and maximum (0.241) values of the coefficients on the HHI difference lead to between a 0.033 and 0.038 unit decrease in the Anderson Index—a variable with mean 0 and standard deviation 0.766. This implies 0.033/ 0.766 = 0.042 and 0.038/ 0.766 = 0.049 standard deviation decreases in the Anderson Index, respectively.

[17] A standard deviation decrease in the vote margin difference is a 0.234 unit decrease; multiplying this by the minimum (0.189) and maximum (0.203) values of the coefficients on the vote margin difference lead to between a 0.044 and 0.048 unit decrease in the Anderson Index; this implies 0.044/ 0.766 = 0.058 and 0.048/ 0.766 = 0.062 standard deviation decreases in the Anderson Index, respectively.

Table 1: Effect of Change in HHI (2004-2009) on Public Goods Index in 2013

	(1)	(2)	(3)	(4)
Difference in Competition, HHI (2009-2004)	0.211*	0.229*	0.208*	0.241**
	(0.110)	(0.115)	(0.112)	(0.115)
Public Goods Index 2008	0.787***	0.786***	0.769***	0.774***
	(0.045)	(0.045)	(0.049)	(0.047)
Difference in Volatility (2009-2004)		0.050	0.061	0.065
		(0.058)	(0.058)	(0.056)
Difference in Logged Population (2009-1998)			0.053	0.102
			(0.055)	(0.066)
Kilometers of Paved Roads 2008			0.000	
			(0.000)	
Number of Sources of National Electricity 2008			0.127**	
			(0.055)	
Change in Kilometers of Paved Roads (2008-2013)				0.001***
				(0.000)
Change, Sources of Electricity (2008-2013)				0.152**
				(0.066)
Constant	0.007	0.015	−0.024	−0.033
	(0.030)	(0.032)	(0.044)	(0.044)
Observations	664	660	660	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 2: Effect of Change in Margin of Victory (2004-2009) on Public Goods Index in 2013

	(1)	(2)	(3)	(4)
Difference in Competition, Margin (2009-2004)	0.189**	0.201**	0.195**	0.203**
	(0.075)	(0.077)	(0.075)	(0.078)
Public Goods Index 2008	0.787***	0.786***	0.769***	0.774***
	(0.045)	(0.045)	(0.049)	(0.047)
Difference in Volatility (2009-2004)		0.057	0.069	0.070
		(0.059)	(0.060)	(0.058)
Difference in Logged Population (2009-1998)			0.059	0.109
			(0.055)	(0.066)
Kilometers of Paved Roads 2008			0.000	
			(0.000)	
Number of Sources of National Electricity 2008			0.128**	
			(0.055)	
Change in Kilometers of Paved Roads (2008-2013)				0.000***
				(0.000)
Change, Sources of Electricity (2008-2013)				0.153**
				(0.066)
Constant	0.006	0.015	−0.025	−0.035
	(0.030)	(0.032)	(0.043)	(0.044)
Observations	664	660	660	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

In addition to being robust to alternate measures of electoral competition, these findings are also robust to alternate measures of publicly-provided goods. Appendix Tables A.1 and A.2 show, for the HHI and margin of victory measures of electoral competition, respectively, that our main findings still hold when we instead use our PCA public goods index. This provides evidence that our estimates are not sensitive to the particular measure of publicly-provided goods employed.

If electoral competition in a commune increased not only provision of publicly-provided goods by the commune government, but also provision of publicly-provided goods by the federal government, one might worry that we are estimating a spurious relationship between competitiveness and local publicly-provided goods provision. That is, perhaps some omitted variable drives both competitiveness and higher economic development in a commune, which contributes to greater provision of publicly-provided goods to that commune by all levels of government. To examine whether this is the case, we carry out a placebo analysis. Specifically, we take as our publicly-provided goods outcomes two outcomes determined at the federal rather than the commune level, and which we accordingly would not expect to be affected by commune-level electoral competitiveness: kilometers of paved roads and the number of sources of national electricity. Appendix Tables A.3 and A.4 regress paved roads on competitiveness as measured by the HHI and the margin of victory, respectively, while Appendix Tables A.5 and A.6 carry out the same two analyses for national sources of electricity. We find that in no case does greater electoral competition yield improvements in these publicly-provided goods outcomes.

5 Evidence for Coordination Mechanism

We test the argument that the negative effect of competition is working through the mechanism of coordination failures by examining two observable implications in the data. First, we look at whether competition is differentially affecting publicly-provided goods contingent on

the level of coordination required for their provision as proposed in *H2*. The more excludable a good, the more it is subject to coordination failures since members of the local government representing geographically disparate groups will have more polarized preferences over where to locate the good. Ex ante, we expect the provision of water is the most excludable and the provision of primary schooling the least. Because fetching water requires carrying a heavy load and has to be done with considerable frequency by one of the most productive members of the household – the woman who has high opportunity costs – proximity to a clean water source is highly valued. Wright (2012), for example, finds that distance from the existing water source is one of the two primary determinants of a Kenyan household's willingness to pay for access to an new water source. By contrast, the expectation in many rural communities is that children will have to walk some distance to go to school. Furthermore, their time and energy spent walking to school is less valuable to the household as they are less productive, particularly in the primary school years.

Using seemingly unrelated regression (SUR) to jointly test the effect of competition on individual publicly-provided goods outcomes in Tables 3 and 4, we find there is evidence of a negative and significant effect of competition on access to water (significant at conventional levels for margin of victory but not HHI) and health clinics.[18] There is no significant effect on schools or roads.

The above tests also serve as a robustness check on our original tests of the single public goods index. As noted by Tsai (2007), SUR can be preferable to combining goods into an index when local goods are differentially preferred across places. SUR allows us to simultaneously evaluate joint hypotheses while allowing for this possibility. Indeed, the SUR results further confirm our original findings as we can reject the null hypothesis that the coefficient on change in competitiveness in each component publicly-provided good regression is jointly equal to zero ($p = 0.08$ for HHI; $p = 0.00$ for Margin of Victory).

[18] Using SUR is appropriate here because the outcome measures – individual local publicly-provided goods – are not independent of each other. SUR allows combining the estimation results – parameter estimates and associated (co)variance matrices – into one parameter vector and creates a simultaneous robust (co)variance matrix. This (co)variance matrix is appropriate even if the estimates were obtained on the same data.

Table 3: Effect of Change in HHI (2004-2009) on Public Goods in 2013

	Schools	Clinics	Boreholes	Roads
Difference in Competition, HHI (2009-2004)	−0.040	0.393*	0.216	0.212
	(0.145)	(0.207)	(0.177)	(0.197)
Difference in Volatility (2009-2004)	−0.118	0.134	0.074	0.044
	(0.090)	(0.094)	(0.101)	(0.204)
Schools in 2008	0.691***			
	(0.059)			
Difference in Logged Population (2009-1998)	−0.057	0.202	−0.209	0.160
	(0.114)	(0.203)	(0.180)	(0.168)
Kilometers of Paved Roads 2008	−0.000	0.000	0.000	0.001**
	(0.001)	(0.000)	(0.001)	(0.000)
Number of Sources of National Electricity 2008	0.269***	0.140	0.245**	0.017
	(0.088)	(0.089)	(0.104)	(0.140)
Clinics in 2008		0.591***		
		(0.069)		
Boreholes in 2008			0.586***	
			(0.074)	
Rural Roads in 2008				0.477***
				(0.063)
Constant	−0.039	−0.055	0.041	−0.056
	(0.052)	(0.093)	(0.077)	(0.070)
Observations	660			

Pooled seemingly unrelated regression analyses with standard errors clustered at the cercle level.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 4: Effect of Change in Margin of Victory (2004-2009) on Public Goods in 2013

	Schools	Clinics	Boreholes	Roads
Difference in Competition, Margin (2009-2004)	0.056	0.354***	0.205**	0.082
	(0.100)	(0.129)	(0.095)	(0.131)
Difference in Volatility (2009-2004)	−0.105	0.146	0.082	0.034
	(0.089)	(0.096)	(0.106)	(0.204)
Schools in 2008	0.689***			
	(0.059)			
Difference in Logged Population (2009-1998)	−0.058	0.211	−0.203	0.164
	(0.114)	(0.201)	(0.181)	(0.168)
Kilometers of Paved Roads 2008	−0.000	0.000	0.000	0.001**
	(0.001)	(0.000)	(0.001)	(0.000)
Number of Sources of National Electricity 2008	0.268***	0.142	0.247**	0.021
	(0.088)	(0.087)	(0.102)	(0.139)
Clinics in 2008		0.593***		
		(0.068)		
Boreholes in 2008			0.584***	
			(0.074)	
Rural Roads in 2008				0.477***
				(0.063)
Constant	−0.034	−0.058	0.039	−0.063
	(0.053)	(0.091)	(0.077)	(0.068)
Observations	660			

Pooled seemingly unrelated regression analyses with standard errors clustered at the cercle level.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

A second observable implication of whether coordination failures are indeed driving the negative relationship between competition and publicly-provided goods is that this relationship should be most apparent where there is no majority party on the council. In 39 percent of rural councils, there is a single party that won a majority (over 50 percent) of available council seats. In these cases, local policy will be easier to make, e.g. coordination among parties is not required, because majority rule can more easily override conflicting opinions. Furthermore, the internal council bureau that is responsible for the day-to-day operations of the council is more likely to be from a single party because coalitions would not have been required for the indirect election of one's own party member to these posts. Indeed, 90 percent of mayors who are not from the plurality party are found in communes where there is no majority party.

We test this observable implication in the data by examining whether the negative relationship between competition and our public goods index is conditional on there not being a majority party on the council. Tables 5 and 6 show that, for both measures of competition, the negative relationship is driven entirely by the 60 percent of communes in which there is no majority party on the council. Column 2 runs our preferred regression specification on the subset of communes without a majority party and Column 3 is the subset with a majority party. The coefficient on the interaction term in Column 1 is close to conventional levels of significance in both cases ($p = 0.12$ for HHI; $p = 0.14$ for Margin of Victory), indicating there is a real difference in the effect of competitiveness across these subgroups.

6 Alternative Explanations

Competition is predicated on private, a substitute for public, goods

The primary dimension along which parties are competing may not be publicly-provided goods provision. In young democracies where parties have weak reputations, clientelist appeals or political promises to targeted groups and individuals are often more credible than

Table 5: Effect of Change in HHI (2004-2009) on Public Goods Index in 2013, By Majority Party on Council

	(1) No Majority	(2) Majority	(3) Interaction
Difference in Competition, HHI (2009-2004)	0.477**	0.110	0.477**
	(0.209)	(0.131)	(0.209)
Difference in Volatility (2009-2004)	0.125	0.043	0.125
	(0.097)	(0.076)	(0.097)
Public Goods Index 2008	0.739***	0.787***	0.739***
	(0.055)	(0.070)	(0.055)
Difference in Logged Population (2009-1998)	0.079	0.030	0.079
	(0.114)	(0.095)	(0.114)
Kilometers of Paved Roads 2008	0.000	0.000	0.000
	(0.000)	(0.001)	(0.000)
Number of Sources of National Electricity 2008	0.187**	−0.013	0.187**
	(0.071)	(0.089)	(0.071)
Majority Party			−0.040
			(0.091)
Difference in Competition, HHI × Majority Party			−0.367
			(0.238)
Difference in Volatility × Majority Party			−0.082
			(0.125)
Public Goods Index 2008 × Majority Party			0.048
			(0.075)
Difference in Logged Population × Majority Party			−0.049
			(0.179)
Kilometers Paved Roads 2008 × Majority Party			−0.000
			(0.001)
Sources of Electricity 2008 × Majority Party			−0.200*
			(0.114)
Constant	0.010	−0.030	0.010
	(0.063)	(0.066)	(0.063)
Observations	405	255	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 6: Effect of Change in Margin of Victory (2004-2009) on Public Goods Index in 2013, By Majority Party on Council

	(1) No Majority	(2) Majority	(3) Interaction
Difference in Competition, Margin (2009-2004)	0.386**	0.113	0.386**
	(0.159)	(0.083)	(0.160)
Difference in Volatility (2009-2004)	0.139	0.046	0.139
	(0.104)	(0.077)	(0.104)
Public Goods Index 2008	0.743***	0.783***	0.743***
	(0.055)	(0.069)	(0.055)
Difference in Logged Population (2009-1998)	0.086	0.034	0.086
	(0.113)	(0.094)	(0.113)
Kilometers of Paved Roads 2008	0.000	0.000	0.000
	(0.000)	(0.001)	(0.000)
Number of Sources of National Electricity 2008	0.194***	−0.014	0.194***
	(0.070)	(0.088)	(0.070)
Majority Party			−0.038
			(0.090)
Difference in Competition, Margin × Majority Party			−0.274
			(0.190)
Difference in Volatility × Majority Party			−0.093
			(0.130)
Public Goods Index 2008 × Majority Party			0.040
			(0.074)
Difference in Logged Population × Majority Party			−0.052
			(0.177)
Kilometers Paved Roads 2008 × Majority Party			−0.000
			(0.001)
Sources of Electricity 2008 × Majority Party			−0.207*
			(0.114)
Constant	0.005	−0.033	0.005
	(0.063)	(0.065)	(0.063)
Observations	405	255	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

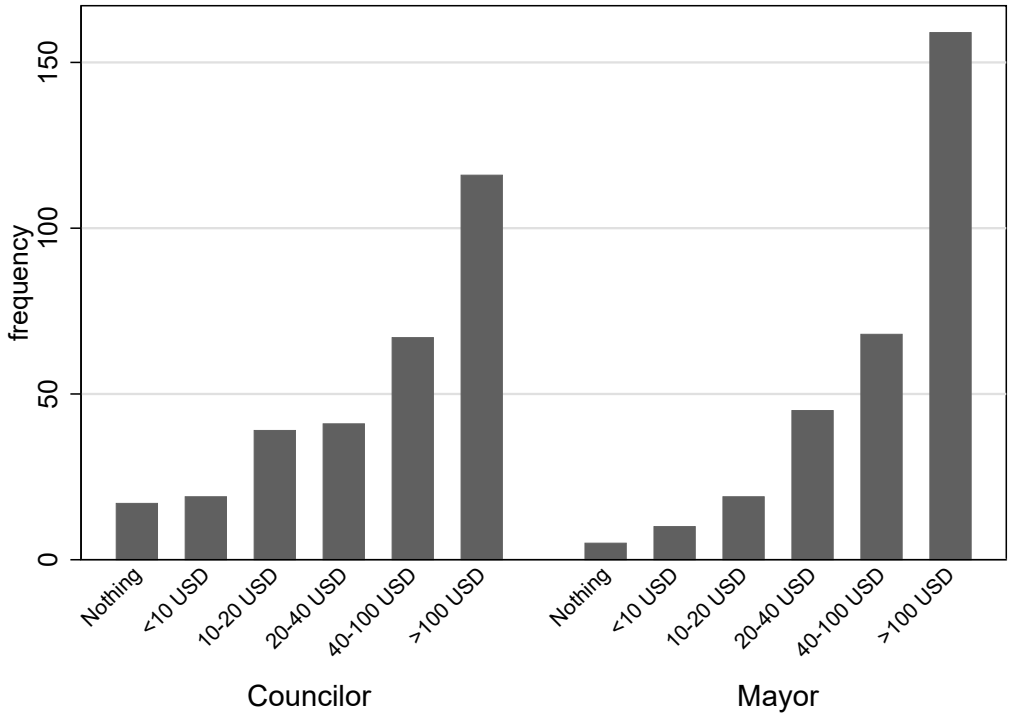
universal policies (Keefer, 2007). Furthermore, the dense social organization within political units, e.g. strong traditional authorities or strong ties to ascriptive identities(Chandra, 2004; Rojo et al., 2015; Gottlieb, 2016a), can make clientelistic strategies of voter mobilization more efficient than programmatic ones. And as Kitschelt and Wilkinson (2007) argue, in a low-income environment, demands to supply targeted benefits can outweigh marginal increases in returns to programmatic investments, focusing voter and politician attention on this dimension. In such contexts, we would expect increased political competition to increase clientelist appeals.

But if political competition is predicated on these other outcomes, it is unclear how increases in competition will affect publicly-provided goods provision. This depends, in part, on whether there are trade-offs or complementarities between the provision of publicly-provided goods and the distribution of targeted benefits. If the delivery of publicly-provided goods and targeted benefits are substitutes rather than complements (Adida et al., 2016) due to distinct politician types or constraints on a politician's budget of time or effort, then an increasingly competitive political system can lead to improved targeted benefits to the detriment of publicly-provided goods provision.

In our qualitative data, it is clear that, in most communes, competition is indeed predicated, at least in part, on targeted rather than programmatic interests. As one respondent says: "Here, personal interests reign. Supporters want to have more, so political parties work hard to satisfy them."[19] However, in order for such competition over individual interests to be consistent with the negative effect on publicly-provided goods, the provision of publicly-provided goods and private transfers should be substitutes rather than complements. One possibility is that politicians have a time budget such that spending more time on constituent service makes them less likely to work to provide publicly-provided goods. The evidence for this is weak. About 70 percent of respondents say that doing one does not impede them from doing the other.

[19]Respondent 54.

Figure 2: Distribution of monthly transfers to constituents (2009-2016), by post



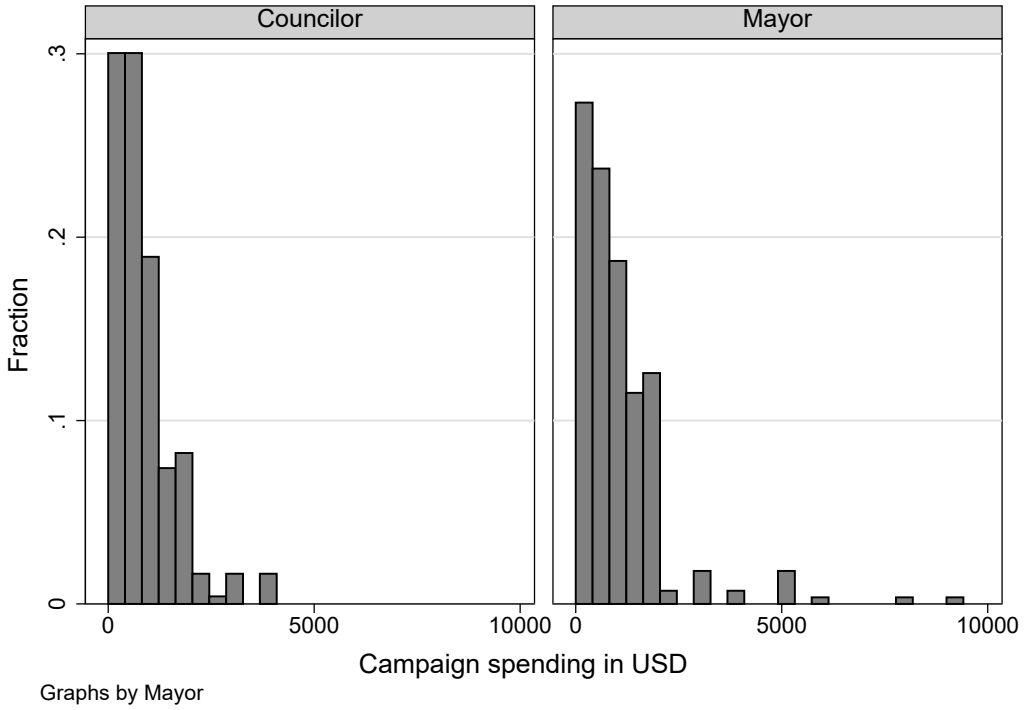
To assess the relationship between private transfers, publicly-provided goods provision and electoral competition more systematically, we conducted a phone survey with 611 elected officials in a representative sample of 313 communes in the weeks before the 2016 Malian local elections. In almost all communes, we surveyed the mayor and a high-ranking member of the largest opposition party. To assess private transfers, we asked how much money per month each politician spent on constituents during the last mandate (see Figure 2 for distribution of outcomes).[20] To assess vote-buying – sometimes considered another instance of private transfers to citizens – we asked each respondent the amount of money they expected their party to spend on campaigning in the upcoming election (see Figure 3 for distribution of outcomes)[21].

Unlike Khemani (2015) who finds that vote-buying and publicly-provided goods provi-

[20]Informed by a pre-survey, we used a multiple-choice response set with pre-defined increments to increase reliability. Values are translated into USD amounts from franc CFA using the exchange rate of 1 USD = 500 CFA.

[21]For better visibility, we exclude three extreme outliers from the graphic depiction of the distribution.

Figure 3: Distribution of estimated campaign spending in 2016, by post



sion are negatively correlated in the Philippines, we find no significant correlation between expected vote-buying in 2016 and any measure of the public goods index (2008 and 2013 levels and their difference). We do, however, find a *positive* correlation between constituent transfers and the 2008 and 2013 levels of the public goods index ($p = 0.08$). Given this, we would not expect publicly-provided goods and private transfers to serve as substitutes for one another or to find a positive relationship between private transfers and competitiveness in our case. Indeed, when we use the same specification as in the publicly-provided goods regressions, we find a null or negative relationship between changes in competitiveness and constituent spending as shown in Table 7. This finding echoes the result in Weghorst and Lindberg (2013) that programmatic and clientelistic electoral strategies in Africa are often not mutually exclusive.

Table 7: Effect of Change in Competition (2004-2009) on Monthly Constituent Spending (2009-2016)

	(1)	(2)
Difference in Competition, HHI (2009-2004)	0.857*	
	(0.481)	
Difference in Competition, Margin (2009-2004)		0.281
		(0.248)
Difference in Volatility (2009-2004)	0.220	0.167
	(0.231)	(0.237)
Difference in Logged Population (2009-1998)	−0.237	−0.252
	(0.331)	(0.341)
Number of sources of national electricity 2008	0.140	0.158
	(0.155)	(0.161)
Kilometers of paved roads 2008	−0.001**	−0.001**
	(0.000)	(0.000)
Mayor	0.392***	0.389***
	(0.101)	(0.099)
2008: dummy - urban	−0.394	−0.390
	(0.294)	(0.314)
Observations	585	585

Ordered probit models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Lack of resources driving incumbent disadvantage and low spending

In one of the few empirical studies that similarly finds a negative relationship between political competitiveness and publicly-provided goods provision, Boulding and Brown (2014) blame voter turnout. They argue that municipalities with fewer resources are less able to mobilize voter turnout and so incumbents rarely win reelection. It is in these places that look competitive that social spending is also lowest. While we aim to account for such an explanation by controlling for factors that would impact the local budget such as population size and indices of development, we can also control for voter turnout. When we add the change in voter turnout from 2004 to 2009 to Equation 2, the coefficients on our measures of political competitiveness remain unchanged.

7 Generalizability

We have shown that, in the case of Mali, there is a significant negative relationship between changes in local political competition and the provision of local publicly-provided goods. Our theory implies that such a case is the result of competition increasing the costs of publicly-provided goods provision (via coordination constraints) at a faster rate than competition decreases rent-seeking (and thus expands the size of the potential budget). Here, we discuss some of the contextual features of Mali that may contribute to this particular relationship between δ and s, and how lessons from this case can generalize to other cases.

In Mali, there are factors that both increase the potential for politicians to encounter coordination problems *and* decrease the potential for competitive elections to mitigate rent-seeking. With respect to the former, the institutional setup of local governments is such that coalitions are often necessary for policymaking. A single party rarely holds both the seats on the bureau and a majority of council seats such that policy can be enacted without any opposition. The personalistic nature of politics described earlier leads to severe fractionalization of parties (an average of over 6 parties per council in 2009) such that any policy

made and implemented requires the cooperation of multiple actors with different interests. Further, the high level of electoral volatility, and especially party switching by politicians, makes long-term coalitions between parties difficult to sustain.

With respect to the latter, the potential for competitive elections to expand the size of the public budget through decreased rent-seeking is relatively weak. Malian voters have exceedingly little information about local politics and hold politicians to quite low standards (Gottlieb, 2016b). There is also evidence that councilmembers can collude to withhold information about rent-seeking from voters.[22]

These features of the Malian context guide predictions about where we are likely to see a similar negative effect of competition on publicly-provided goods, e.g. where increasing coordination costs are likely to outweigh decreases in rent-seeking. While we do not have outside cases to test our scope conditions comparatively, we can take advantage of internal variation within Mali's communes. One observable feature of communes that could decrease the threat of coordination failure is the existence of a majority party. We have already shown in Tables 5 and 6 that having a majority party on the council indeed mitigates the negative effect of competition on coordination costs. An additional implication is thus that party systems that are more fractionalized and electoral systems that allow for multiple parties to govern simultaneously, e.g. multi-member districts, are more likely to see a negative effect of competition on publicly-provided goods.

One observable feature of Malian communes that could increase the likelihood that competitive elections mitigate rent-seeking is the level of development in the commune. More developed communes should have both better developed information infrastructure and more educated citizens. An implication from our theory is thus that the negative effect of competition is more likely to obtain in less developed communes. We can directly test this in our data.

[22]Gottlieb (2015) finds evidence that commune councilors from different parties sometimes have incentives to collude to jointly reap the spoils of office rather than compete and drive down the size of the pie, leading to fewer and less productive public investments on the one hand, and access to rents by opposition parties on the other.

First, we construct a measure of commune development, by carrying out a PCA that includes the 2008 levels of our central government infrastructure provision outcomes: the number of kilometers of paved roads and the number of sources of electricity in the commune. We take the first principal component emerging from this analysis and call it our 2008 development index. We then examine whether there is any evidence of heterogenous impacts of electoral competition on publicly-provided goods provision by the commune's 2008 development index in Table 8 for our HHI measure and in Table 9 for our margin of victory measure. In both cases, the effect of changes in electoral competition between the two elections is only statistically significant for communes in the bottom half of the distribution of the 2008 development index, and its effects are larger in magnitude for such communes as well. However, it is important to note that these differences are not statistically significant; we cannot reject at conventional significance levels the null hypothesis that the effects are the same. If effect sizes are small, our sample may be too small to pick them up. Overall, we take this as suggestive (but not conclusive) evidence that, at higher levels of development, electoral competition is less likely to have a negative effect on publicly-provided goods provision – in line with our proposition that this is when we should expect reductions in rent-seeking to outweigh coordination costs.

Table 8: Effect of Change in HHI (2004-2009) on Public Goods Index in 2013, By 2008 Level of Development

	(1) Interaction	(2) Interaction	(3) Bottom half	(4) Top half
Difference in Competition, HHI (2009-2004)	0.202*	0.231*	0.231*	0.221
	(0.119)	(0.119)	(0.119)	(0.200)
Difference in Volatility (2009-2004)	0.066	0.104	0.104	0.024
	(0.058)	(0.073)	(0.073)	(0.101)
Public Goods Index 2008	0.776***	0.739***	0.739***	0.788***
	(0.053)	(0.086)	(0.086)	(0.055)
Difference in Logged Population (2009-1998)	0.063	0.014	0.014	0.127*
	(0.063)	(0.080)	(0.079)	(0.071)
Difference in Competition, HHI × Development Index 2008	−0.130			
	(0.134)			
Development Index, 2008	0.022			
	(0.025)			
Difference in Volatility × Development Index 2008	−0.034			
	(0.079)			
Public Goods Index 2008 × Development Index 2008	−0.005			
	(0.037)			
Difference in Logged Population × Development Index 2008	0.021			
	(0.038)			
Difference in Competition, HHI × Top Half Development Index 2008		−0.011		
		(0.211)		
Top Half Development Index 2008		0.053		
		(0.064)		
Difference in Volatility × Top Half Development Index 2008		−0.080		
		(0.128)		
Public Goods Index 2008 × Top Half Development Index 2008		0.049		
		(0.103)		
Difference in Logged Population × Top Half Development Index 2008		0.112		
		(0.101)		
Constant	−0.005	−0.035	−0.035	0.018
	(0.045)	(0.054)	(0.054)	(0.058)
Observations	660	660	373	287

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table 9: Effect of Change in Margin of Victory (2004-2009) on Public Goods Index in 2013, By 2008 Level of Development

	(1) Interaction	(2) Interaction	(3) Bottom half	(4) Top half
Difference in Competition, Margin (2009-2004)	0.169**	0.227**	0.227**	0.140
	(0.082)	(0.087)	(0.087)	(0.111)
Difference in Volatility (2009-2004)	0.070	0.114	0.114	0.021
	(0.059)	(0.073)	(0.073)	(0.104)
Public Goods Index 2008	0.774***	0.738***	0.738***	0.790***
	(0.053)	(0.083)	(0.083)	(0.055)
Difference in Logged Population (2009-1998)	0.066	0.021	0.021	0.131*
	(0.061)	(0.078)	(0.078)	(0.073)
Difference in Competition, Margin × Development Index 2008	−0.145			
	(0.114)			
Development Index, 2008	0.031			
	(0.027)			
Difference in Volatility × Development Index 2008	−0.046			
	(0.080)			
Public Goods Index 2008 × Development Index 2008	−0.006			
	(0.038)			
Difference in Logged Population × Development Index 2008	0.002			
	(0.049)			
Difference in Competition, Margin × Top Half Development Index 2008		−0.088		
		(0.127)		
Top Half Development Index 2008		0.048		
		(0.062)		
Difference in Volatility × Top Half Development Index 2008		−0.092		
		(0.130)		
Public Goods Index 2008 × Top Half Development Index 2008		0.052		
		(0.101)		
Difference in Logged Population × Top Half Development Index 2008		0.110		
		(0.103)		
Constant	−0.005	−0.035	−0.035	0.012
	(0.045)	(0.052)	(0.052)	(0.058)
Observations	660	660	373	287

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

8 Conclusion

Using panel data from Malian localities, we have demonstrated a robust negative relationship between democratic political competition and the provision of local publicly-provided goods. While this result may seem surprising given standard models of electoral accountability, the literature provides a ready explanation for why, in new democracies or developing countries where clientelism is prevalent, we may not expect a positive relationship between competition and publicly-provided goods. While we do not reject the claim that, in some cases, competition can increase private transfers at the expense of publicly-provided goods (see one empirical example from Driscoll (2015) in Ghana), we do not find evidence that this is the mechanism driving our finding. Instead, we argue and provide evidence for a new mechanism underpinning the negative relationship between political competitiveness and publicly-provided goods provision: coordination failures among competing politicians.

We develop a theory to generate predictions about *when* we should be most likely to see coordination failures among politicians lead to the negative effect of competition on publicly-provided goods provision. Our theory assumes that increases in competition effects governance in two ways. First, it can decrease rent-seeking by politicians, thereby increasing the total budget they can spend on either private transfers or publicly-provided goods. Second, it can increase the cost of producing publicly-provided goods by making it more difficult for politicians to coordinate once they are elected to positions in government. The relative impact on rent-seeking and coordination costs will determine whether an increase or decrease in publicly-provided goods obtains.

Notably, our theory also accommodates the competing phenomenon – that increases in private transfers provision can lead to simultaneous decreases in publicly-provided goods provision. We show that whether this happens depends on the substitutability of private transfers and publicly-provided goods. Of course, the two mechanisms are not mutually excludable. While, under some parameters, the predictions of both arguments are observationally equivalent, we happen to have a case in which we can drive a wedge between the

two. When public and private transfers are close substitutes, we should see competition drive up private transfers provision and drive down publicly-provided goods provision under both mechanisms. However, when the two goods are less substitutable, we will not necessarily see an increase in private transfers provision under our preferred mechanism as we still would under the alternative explanation.

While we would only expect the negative finding from Mali to manifest in similar contexts where coordination among multiple, potentially diverse actors is required for policymaking and where governments are relatively non-transparent, our argument is more general. It makes predictions about whether and when competition should produce a negative effect on private transfers and publicly-provided goods provision. In addition, it highlights an important feature of political competition that has thus far been ignored in the literature: its potential to exacerbate the daily workings of governance in between elections.

References

Adida, Claire, Jessica Gottlieb, Eric Kramon, and Gwyneth McClendon, "Breaking the Clientelistic Voting Equilibrium: The Joint Importance of Salience and Coordination," 2016.

Anderson, Michael L, "Multiple inference and gender differences in the effects of early intervention: A reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects," *Journal of the American Statistical Association*, 2008, *103* (484).

Arvate, Paulo Roberto, "Electoral competition and local government responsiveness in Brazil," *World Development*, 2013, *43*, 67–83.

Besley, Timothy, *Principled agents?: The political economy of good government*, Oxford University Press on Demand, 2006.

_ **and Masayuki Kudamatsu**, "Health and Democracy," *Political Economy*, 2006, *96* (2), 313–318.

_ **, Torsten Persson, and Daniel M Sturm**, "Political competition, policy and growth: theory and evidence from the US," *The Review of Economic Studies*, 2010, *77* (4), 1329–1352.

Boix, Carles, "Democracy, Development, and the Public Sector," *American Journal of Political Science*, 2001, *45* (1), 1–17.

Boulding, Carew and David S Brown, "Political competition and local social spending: evidence from Brazil," *Studies in Comparative International Development*, 2014, *49* (2), 197–216.

Brueckner, Jan K., "Fiscal federalism and economic growth," *Journal of Public Economics*, 2006, *90* (10-11), 2107–2120.

Buchanan, James M and Gordon Tullock, *The calculus of consent*, Vol. 3, University of Michigan Press Ann Arbor, 1962.

Chandra, Kanchan, *Why ethnic parties succeed: Patronage and ethnic head counts in India*, Cambridge University Press, 2004.

Crost, Benjamin and Uma S Kambhampati, "Political market characteristics and the provision of educational infrastructure in North India," *World Development*, 2010, *38* (2), 195–204.

Díaz-Cayeros, Alberto, Beatriz Magaloni, and Alexander Ruiz-Euler, "Traditional governance, citizen engagement, and local public goods: evidence from Mexico," *World Development*, 2014, *53*, 80–93.

Driscoll, Barry, "Does political competition reduce clientelism in local government? Parties and turnout buying in Ghana's District Assemblies," 2015.

Fearon, James, "Electoral Accountability and the Control of Politicians: Selecting Good Types versus Sanctioning Poor Performance," in Adam Przeworski, Susan C. Stokes, and Bernard Manin, eds., *Democracy, accountability, and representation*, Cambridge: Cambridge University Press, 1999, pp. 55–97.

Ferraz, Claudio and Frederico Finan, "Electoral Accountability and Corruption:Evidence from the Audits of Local Governments," *American Economic Review*, 2011, *101*, 1274–1311.

Gottlieb, Jessica, "The logic of party collusion in a democracy: Evidence from Mali," *World Politics*, 2015, *67* (01), 1–36.

_ , "Explaining Variation in Broker Strategies: A Lab-in-the-Field Experiment in Senegal," *Berkeley Center on the Politics of Development Working Paper 2015-06*, 2016.

_ , "Greater Expectations: A Field Experiment to Improve Accountability in Mali," *American Journal of Political Science*, 2016, *60* (01), 143–157.

Hatfield, John William, "Federalism, taxation, and economic growth," *Journal of Urban Economics*, 2015, *87*, 114–125.

_ **and Gerard Padró i Miquel**, "A Political Economy Theory of Partial Decentralization," *Journal of the European Economic Association*, 2012, *10* (3), 605–633.

_ **and Katrina Kosec**, "Federal Competition and Economic Growth," *Journal of Public Economics*, 2013, *93* (1), 144–159.

Janvry, Alain De, Frederico Finan, and Elisabeth Sadoulet, "Local electoral incentives and decentralized program performance," *Review of Economics and Statistics*, 2012, *94* (3), 672–685.

Keefer, Philip, "Clientelism, credibility, and the policy choices of young democracies," *American journal of political science*, 2007, *51* (4), 804–821.

Khemani, Stuti, "Buying votes versus supplying public services: Political incentives to under-invest in pro-poor policies," *Journal of Development Economics*, 2015, *117*, 84–93.

Kitschelt, Herbert and Steven I Wilkinson, *Patrons, clients and policies: Patterns of democratic accountability and political competition*, Cambridge University Press, 2007.

Kopeckỳ, Petr, "Political competition and party patronage: Public appointments in Ghana and South Africa," *Political Studies*, 2011, *59* (3), 713–732.

Labonne, Julien, "The local electoral impacts of conditional cash transfers: Evidence from a field experiment," *Journal of Development Economics*, 2013, *104*, 73–88.

Levitsky, Steven R, "From populism to clientelism? The transformation of labor-based party linkages in Latin America," in Herbert Kitschelt and Steven I Wilkinson, eds., *Pa-*

trons, clients and policies: Patterns of democratic accountability and political competition, Cambridge University Press, 2007, pp. 110–140.

Riedl, Rachel Beatty, *Authoritarian origins of democratic party systems in Africa*, Cambridge University Press, 2014.

Rojo, Guadalupe, Subhash Jha, and Erik Wibbels, "Political Networks, Clientelism and Public Goods: Evidence from Slums in Udaipur, India," *Unpublished paper*, 2015.

Ross, Michael, "Is democracy good for the poor?," *American Journal of Political Science*, 2006, *50* (4), 860–874.

Schaffer, Frederic Charles, *Democracy in translation: understanding politics in an unfamiliar culture*, Cornell University Press, 2000.

Stasavage, David, "Democracy and Education Spending in Africa," *American Journal of Political Science*, 2005, *49* (2), 343–358.

Tsai, Lily L, "Solidary groups, informal accountability, and local public goods provision in rural China," *American Political Science Review*, 2007, *101* (02), 355–372.

Weghorst, Keith R and Staffan I Lindberg, "What Drives the Swing Voter in Africa?," *American Journal of Political Science*, 2013, *57* (3), 717–734.

Weingast, Barry R., "The economic role of political institutions: market-preserving federalism and economic development," *Journal of Law, Economics, and Organization*, 1995, *11* (1), 1–31.

Weingast, Barry R and William J Marshall, "The industrial organization of Congress; or, why legislatures, like firms, are not organized as markets," *The Journal of Political Economy*, 1988, pp. 132–163.

Weitz-Shapiro, Rebecca, "What wins votes: Why some politicians opt out of clientelism," *American Journal of Political Science*, 2012, *56* (3), 568–583.

Wilkinson, Steven I, "Explaining changing patterns of party-voter linkages in India," in Herbert Kitschelt and Steven I Wilkinson, eds., *Patrons, clients and policies: Patterns of democratic accountability and political competition*, Cambridge University Press, 2007, pp. 110–140.

Williams, Martin J, "The Political Economy of Unfinished Development Projects: Corruption, Clientelism, or Collective Choice?," 2016.

Wright, Steven G, "Using contingent valuation to estimate willingness to pay for improved water source in rural Uganda," *Dissertation, Michigan Technological University*, 2012.

A Robustness Checks

A.1 Main Tables using Principal Components Index

Table A.1: Effect of Change in HHI (2004-2009) on 2013 Public Goods Index, PCA

	(1)	(2)	(3)	(4)
Difference in Competition, HHI (2009-2004)	0.298*	0.331*	0.298*	0.368**
	(0.171)	(0.176)	(0.175)	(0.175)
Public Goods Index, PCA, 2008 (4 items)	0.791***	0.791***	0.775***	0.779***
	(0.045)	(0.045)	(0.047)	(0.046)
Difference in Volatility (2009-2004)		0.093	0.112	0.130
		(0.122)	(0.125)	(0.112)
Difference in Logged Population (2009-1998)			−0.003	0.079
			(0.139)	(0.132)
Kilometers of Paved Roads 2008			0.000	
			(0.001)	
Number of Sources of National Electricity 2008			0.222**	
			(0.092)	
Change in Kilometers of Paved Roads (2008-2013)				0.001***
				(0.000)
Change, Sources of Electricity (2008-2013)				0.286**
				(0.124)
Constant	0.010	0.025	−0.011	−0.032
	(0.055)	(0.057)	(0.077)	(0.078)
Observations	664	660	660	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.2: Effect of Change in Margin of Victory (2004-2009) on 2013 Public Goods Index, PCA

	(1)	(2)	(3)	(4)
Difference in Competition, Margin (2009-2004)	0.276**	0.298**	0.287**	0.301**
	(0.116)	(0.118)	(0.115)	(0.118)
Public Goods Index, PCA, 2008 (4 items)	0.790***	0.791***	0.775***	0.779***
	(0.045)	(0.045)	(0.047)	(0.046)
Difference in Volatility (2009-2004)		0.104	0.125	0.136
		(0.124)	(0.127)	(0.116)
Difference in Logged Population (2009-1998)			0.005	0.090
			(0.139)	(0.131)
Kilometers of Paved Roads 2008			0.000	
			(0.001)	
Number of Sources of National Electricity 2008			0.224**	
			(0.091)	
Change in Kilometers of Paved Roads (2008-2013)				0.001***
				(0.000)
Change, Sources of Electricity (2008-2013)				0.288**
				(0.124)
Constant	0.009	0.025	−0.013	−0.035
	(0.055)	(0.057)	(0.075)	(0.075)
Observations	664	660	660	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

A.2 Placebo Tests: Paved Roads and Electricity

Table A.3: Placebo Test: Effect of Change in HHI (2004-2009) on Kilometers of Paved Roads in 2013

	(1)	(2)	(3)
Difference in Competition, HHI (2009-2004)	−15.530	−22.853	−23.629
	(18.471)	(24.076)	(23.954)
Kilometers of Paved Roads 2008	1.067***	1.061***	1.060***
	(0.050)	(0.048)	(0.049)
Difference in Volatility (2009-2004)		−24.870	−24.675
		(20.669)	(20.261)
Difference in Logged Population (2009-1998)			15.310
			(11.373)
Constant	19.078***	15.617***	10.275**
	(4.998)	(2.973)	(3.856)
Observations	664	660	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.4: Placebo Test: Effect of Change in Margin of Victory (2004-2009) on Kilometers of Paved Roads in 2013

	(1)	(2)	(3)
Difference in Competition, Margin (2009-2004)	7.079	2.758	2.802
	(5.619)	(6.338)	(6.333)
Kilometers of Paved Roads 2008	1.066***	1.061***	1.059***
	(0.050)	(0.048)	(0.049)
Difference in Volatility (2009-2004)		−21.949	−21.673
		(18.735)	(18.316)
Difference in Logged Population (2009-1998)			14.768
			(11.536)
Constant	19.781***	16.805***	11.689***
	(5.514)	(3.555)	(3.530)
Observations	664	660	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.5: Placebo Test: Effect of Change in HHI (2004-2009) on Number of Sources of National Electricity in 2013

	(1)	(2)	(3)
Difference in Competition, HHI (2009-2004)	0.103	0.091	0.090
	(0.078)	(0.080)	(0.080)
Number of Sources of National Electricity 2008	0.640***	0.637***	0.632***
	(0.046)	(0.046)	(0.046)
Difference in Volatility (2009-2004)		−0.045	−0.045
		(0.056)	(0.056)
Difference in Logged Population (2009-1998)			0.048
			(0.054)
Constant	0.085***	0.079***	0.063***
	(0.014)	(0.015)	(0.022)
Observations	664	660	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.6: Placebo Test: Effect of Change in Margin of Victory (2004-2009) on Number of Sources of National Electricity in 2013

	(1)	(2)	(3)
Difference in Competition, Margin (2009-2004)	0.037	0.028	0.028
	(0.045)	(0.047)	(0.047)
Number of Sources of National Electricity 2008	0.642***	0.639***	0.634***
	(0.045)	(0.045)	(0.046)
Difference in Volatility (2009-2004)		−0.050	−0.050
		(0.056)	(0.056)
Difference in Logged Population (2009-1998)			0.049
			(0.054)
Constant	0.082***	0.076***	0.060***
	(0.013)	(0.015)	(0.021)
Observations	664	660	660

OLS models with standard errors clustered at the cercle level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$