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**Roads and Regional Favoritism in Sub-Saharan Africa**

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## **Roads and Regional Favoritism in Sub-Saharan Africa**

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### **Abstract:**

We examine the relationship between road quality and regional favouritism in Sub-Saharan Africa. Roads are an important public good in Africa, not only because of their positive impact on economic development but also because they are a major focus of central government spending. Using data from up to twelve countries from rounds 3 through 6 of the Afrobarometer on the existence of paved roads and regional, round, and country/round fixed effects, we find a negative effect of having a co-regional president, such that co-regional presidents provide poorer quality roads to their home areas than to other parts of the country. This result exists at both the highest (provincial) and second-highest (district) level of local government, and is robust to a variety of controls and sub-samples. We examine qualitative evidence from three countries which suggests that Presidents channel regional favouritism towards their co-ethnic/co-regional elite at the expense of the non-elite.

## 1. Introduction

There is a large and growing literature on the existence of regional and/or ethnic favouritism in both Africa and around the world, such that Presidents target public and private goods such as roads and health and education spending towards their ethnic brethren and/or residents in their home region (Ahlerup & Isaksson, 2015; Burgess, Jedwab, Miguel, Morjaria, & Padró i Miquel, 2015; De Luca, Hodler, Raschky, & Valsecchi, 2018; Dickens, 2018; Franck & Rainer, 2012; Hodler & Raschky, 2014; Kramon & Posner, 2016). The formal theoretical basis for this type of targeting is that Presidents are reliant upon their ethnic brethren for political support, whom they must reward with higher public spending in order to stay in office (Burgess et al., 2015; Padró i Miquel, 2007). This literature suggests that when the goods to be distributed are personal in nature (such as cabinet positions) then they can be targeted directly to co-ethnics; however, when the goods are fixed infrastructural public goods such as hospitals, schools and roads, then they tend to be targeted towards the President's home region. However, alongside this evidence exists a separate set of literature which casts doubt on the robustness of these findings (Kramon & Posner, 2013; Kudamatsu, 2009), with contrary evidence of negative effects in the case of taxes on cash crops (Kasara, 2007). This evidence is well supported by older literature on how clientelistic politics in Africa benefit the elite but not the masses, who support their co-ethnics despite failing to gain materially when they are in power (cf. (Van de Walle, 2003)).

In this paper we examine the existence of regional favouritism in Africa as regards the quality of road infrastructure, using data from the Afrobarometer project on the existence of paved roads as our dependent variable. We focus on road quality for four reasons. First, there is a broad literature on the importance of roads and transport infrastructure for economic development, especially in Sub-Saharan Africa (Blimpo, Harding, & Wantchekon, 2013; Buys, Deichmann, & Wheeler, 2010; Calderón & Servén, 2010). Indeed, this evidence suggests that poor roads hinder international trade and increase food insecurity, and that the bad state of African roads is one of the main reasons why poverty rates remain so high in the continent, particularly in landlocked countries. There is additional evidence that roads also have strong effects on politics (Shami,

2012, 2019), specifically via enhancing the economic and political bargaining power of workers, and that African voters reward or punish incumbents according to road quality (Harding, 2015).

Secondly, roads are a major focus of central government spending across Africa and are thus ideal for targeting to distinct constituencies. Transport infrastructure, particularly roads, draw between half to more than three-quarters of all government spending on infrastructure, and account for around 1.6% of GDP on average (but more than 4% in countries such as Ethiopia, Madagascar, Mozambique and Zambia) (Gwilliam, 2011, pp. 314-316). Moreover, central governments across Africa generally have a high degree of control over road expenditure, unlike public goods like health and education which are often either privatized and/or decentralized to local governments (Burgess et al., 2015; Harding, 2015). Indeed, even in cases like Zambia where national road agencies are supposedly independent of the government, there is clear evidence of political interference (Raballand, Bridges, Beuran, & Sacks, 2013).

Thirdly, there is already evidence that roads have been a source of regional favoritist policies in Africa, specifically in Kenya (Burgess et al., 2015). In this example the authors found that counties in post-colonial Kenya that had a majority of residents that were co-ethnic with the President received higher expenditures on roads and had a higher length of paved roads, but only in non-democratic periods. This finding, however, only examines government spending on roads and their existence, rather than road quality, and it has not been replicated in other contexts outside Kenya. Indeed, the Afrobarometer data allows for an assessment of local road quality, rather than the mere existence of a given road.

Fourth, our data is particularly suited to observing road quality above other types of public goods. More specifically, the Afrobarometer asked enumerators between rounds 3 (in 2005-2006) and 6 (2014-2015) to assess the presence of a small number of public goods in each enumeration area, such as health clinics, schools and post offices as well as services such as electricity and a functioning piped water system. The options given were “yes,” “no” and “can’t determine,” with the third option given as enumerators did not necessarily have the opportunity to view or test for the existence of these services directly.<sup>1</sup> The only public good where enumerators were not given an

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<sup>1</sup> Across these four rounds, more than 1% of the observations were “can’t determine” for the presence of a functioning sewage system, post office, police station and health clinic, rising to

option of “can’t determine” was for the presence of a paved/tarred road at the start point of the enumeration area, as the enumerator would be able to observe personally the quality of the road herself/himself as she/he came to the conduct the survey. Thus, while we examine the relationship between regional favouritism and these other types of public goods below, we are more confident about the data on road quality than any other type of service measured by the Afrobarometer.

Using data from all twelve African countries covered by the Afrobarometer which experienced at least one change in the home district of the President in between rounds 3 and 6, we find that residing in the home region of the President (lagged by one year) leads to a notable decline in road quality. We obtain this finding at two different levels of local government, such that at the provincial level (administrative level one) there is more than a 5% decline in the probability of observing a paved road, while at the district (administrative level two) the probability rises to 31%. We show that this result is robust to different lags and a variety of sub-samples, including in a majority of all the countries in our analysis on a country-by-country basis. We also find that respondents in the President’s home district are more likely to support the President than other citizens, even when controlling for co-ethnicity, which is consistent with the argument that Presidents can withhold services from their home regions without suffering any loss of support. Qualitative case studies from Nigeria, South Africa and Zambia back up our findings and suggest that regional favoritist policies can be beneficial to co-regional elites but have little positive effect on average citizens. Our findings thus call into question the aforementioned general finding that Presidents provide favours to their home regions, and suggest a much more nuanced understanding of how and when politicians need to curry favour from their supporters.

The rest of the paper is organized as follows. In section 2 we describe the data and present our quantitative results. Section 3 briefly discusses the three case studies. Finally, section 4 concludes.

## 2. Data and Results

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more than 3% across multiple indicators in individual countries such as Mozambique, Namibia, Nigeria and Senegal.

As noted above, we use data from rounds 3-6 of the Afrobarometer project on the presence of tarred/paved roads in each enumeration area. This question was asked in the same way with exactly the same wording in these four rounds; in contrast, in round 2 the enumerator was asked what percentage of the last 10km was spent on paved/tarred roads, while in round 7 there were multiple-choice questions about the type of road at various parts of the enumerator's journey, making both rounds unusable here. The data varies at the level of the enumeration area, which always contains eight individual household observations. Table A1 provides details about the surveys used per country alongside the number of provinces and districts and average number of observations per province and district, which is always above ten in the case of the latter unit. Table A2 lists all regime transitions captured within the dataset across all twelve countries which saw a change in the President's home region, and Table A3 gives the descriptive statistics across the dataset.

Our econometric strategy is to regress the existence of tarred/paved roads on a co-regional President dummy (with a lag of 12 months before the start of the survey to allow for changes in annual government budgets to filter through to road construction/upgrading), alongside a control for urban residence and regional, round, and country/round fixed effects, while clustering our standard errors at the regional level.<sup>2</sup> We used recently geo-coded data from the Afrobarometer to match data by province and district across all four rounds, and coded the existence of the home region of the President according to his/her birth place.

We begin our analysis in Table 1, where we first list results without any individual controls in column 1 and then when controlling for age, age squared, gender, level of education and a poverty index in column 2, even though these variables potentially suffer from endogeneity and post-treatment bias if we assume that Presidents direct private goods to their districts and that the presence of roads will attract internal immigrants and/or raise incomes. (For these reasons we do not include individual controls in the rest of the analysis.) These first set of results show that having a co-regional president one year before the survey corresponds to a 31% decline in the probability of having a paved road. While we are interested in the district as the main unit of

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<sup>2</sup> The dependent variable is a dummy variable but we chose to use OLS for the estimations to facilitate the estimation of clustered standard errors, which are quite valuable given the nature of the model estimated.

observation as it is the smallest unit for which we have adequate data, it is in some cases so small that there is not a full set of data across all rounds by country.<sup>3</sup> As such we move the unit of observation to the province in columns 3-4, which gives us a larger number of observations per unit but also less precision in our analysis. Not surprisingly, the coefficient remains statistically significant but declines in magnitude, which is consistent with the idea that the effect of regional favouritism will be more concentrated at smaller units of analysis.

We perform a variety of robustness tests, as listed in Tables A4-A7. Table A4 shows that our results are robust to using a lag of either six months or 18 months at both the district and provincial level. Table A5 shows that the effects hold in both rural and urban areas, when excluding enumerators that speak the same native language of the President to avoid co-ethnicity bias (Adida, Ferree, Posner, & Robinson, 2016), and that there is no effect of having a co-district Vice-President or Minister of Transport, despite previous evidence on the role of Vice-Presidents and Ministers in providing public goods to their home areas (André, Maarek, & Tapo, 2018; Burgess et al., 2015; Kramon & Posner, 2016). We also show that democratization has no relationship with regional favouritism by interacting a co-district President with each country's annual Polity2 score, in contrast to (Kasara, 2007)'s finding that more political competition leads to a dampening in the negative effects of being a co-ethnic of the President. In Table A6 we list individual country results, which are impressively robust: of the eight countries for which we have a complete set of data, none has a positive coefficient, while six have a negative coefficient that is statistically significant at the 5% level or better. Finally, in Table A7 we account for differences across rounds by eliminating each round at a time, with no changes in our results.

In Table 2 we examine whether the co-regional effect we are observing is merely an artefact of presidents withdrawing services from areas inhabited by co-ethnics rather than residents of their home districts. We observe a negative relationship between being a co-ethnic of the President and having a paved road in column 1, but the coefficient is small, while only including non-co-ethnics of the President in column 2 leads to an even higher coefficient on the Co-District variable than before. Excluding home districts in column 3 yields a weak relationship between co-

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<sup>3</sup> We lack data for the Presidential home district in one round each in Benin, Mozambique, Senegal and Tanzania.

ethnicity and road quality, while including both the co-ethnic and co-district variables in column 4 shows a much better fit between road quality and the co-district variable than with the co-ethnic variable. This evidence unambiguously suggests that the decline in road quality is concentrated among citizens who live in the President's home district rather than co-ethnics.

(Kasara, 2007) suggests several potential reasons why African farmers appear to suffer under the rule of co-ethnic Presidents. One potential cause is that citizens support the President regardless of whatever benefits they do or do not receive from the President because they receive 'psychic benefits' (Chandra, 2004). Thus in columns 5 and 6 of Table 2 we use data from the Afrobarometer on Presidential Performance and Presidential Trust (which we converted in both cases to dummy variables) to test the theory that Presidents under-provide services in their homelands because local voters are captured and unlikely to withdraw their support from the President no matter how poor public services become. In both columns we observe an independent, positive effect of both being resident in the President's home district and being a co-ethnic, with very similar sized coefficients, which suggest that Presidents do not suffer a decline in support from their home districts despite a decline in road quality.

Of course, it could be possible that Presidents neglect road quality in their home districts but compensate for it with other types of public goods (Kasara, 2007, p. 169). To test this alternative hypothesis we examine the relationship between living in the President's home district and the existence of all other types of public services measured by the Afrobarometer project. With the aforementioned caveats that not all of these services would be observable to the enumerator (which could lead to problems of miscoding as well as missing data), and that many will be locally and/or privately provided rather than from the central government, we list the coefficients on the co-district President for all nine goods in Table A8. What is striking is that all coefficients are negative and one, namely Market Stalls, is statistically significant at the 5% level. These results are thus not consistent with the idea of President's compensating the under-provision of one public service with the over-provision of another.

### 3. Case Study Evidence

The quantitative evidence presented above is consistent with a variety of qualitative case study evidence from contemporary Africa, which suggests that the ultimate cause of poor services in Presidents' home regions is that Presidents channel regional favouritism towards their co-ethnic/co-regional elite at the expense of the non-elite. We briefly give three such examples here from regimes included in our dataset. In Nigeria President Goodluck Jonathan managed to channel significant resources towards his home area, such that the Niger Delta region received 86% of all new government contracts approved by the Federal Executive Council (FEC) between March and August 2011, for instance, of which almost half were for road projects (Abdallah, 2011). However, two years later residents of Jonathan's home state of Bayelsa complained to one reporter that numerous local towns remained "unconnected by road to the hinterland" (James, 2013) and that Jonathan has moved from "Vice President to Acting President and now President for the past four years, yet we cannot be proud of one kilometer of road in our area" (Adebayo, 2014). At the end of Jonathan's tenure as President in 2015 one local noted that "the president has done his lot by ensuring that money is released for developmental purposes, particularly, in the area of road construction, but the people, who are given the contract keep the money in their pockets and never execute the project" (Nwakunor, 2015). Yet despite all of these failures, locals still supported Jonathan in the 2015 presidential elections: according to one voter, "Some said he has not performed. But whether he performed or not, I will vote for him. I know everyone in Bayelsa will vote for him. He's our son and brother" (The Nation, 2015).

In South Africa, while President Jacob Zuma infamously spent over 246 million Rand (~\$25 million) on upgrading his private compound in his home district of Uthungulu in KwaZulu-Natal province, the road leading to his compound cost even more than the upgrades, at 290 million Rand (\$35 million). One opposition member of the KwaZulu-Natal provincial legislature noted that "the building of the roads past the president's home led one to conclude that it was at the expense of development in other areas [in KwaZulu-Natal]" (Mail and Guardian, 2012), while another complained that "communities living in other [nearby] rural areas suffer socioeconomic deprivation as there are inadequate roads ... but we can afford to spend millions for the benefit of one person's clan and homestead" (Mthethwa, 2016).

Finally, in Zambia two of President Michael Sata's pet projects were named Link Zambia 8000 and Pave Zambia 2000, in which he aimed to construct 8000 kilometres of new roads and rehabilitate 2000 kilometres of urban roads, respectively. Yet there was evidence that Sata used these projects for personal gain, inasmuch as more than \$33,000 worth of deposits were paid into his personal bank account by an associate of the roads contractor China Jiangxi in November 2011 alone, after which China Jiangxi was awarded contracts from the government to build roads in Sata's home province of Muchinga (Mwenya, 2014). Not surprisingly, there were subsequent complaints about delayed road construction under China Jiangxi's control within Muchinga province (Zulu, 2014).

#### 4. Conclusion

In this paper we examined the relationship between road quality and having a co-regional President in Sub-Saharan Africa. Using recent Afrobarometer survey data, we showed that having a co-regional President is associated with a notable decline in the probability of having a tarred/paved road, and that this finding is robust to the use of the inclusion of a number of different controls and sub-samples, including a majority of country-level analyses. The results suggest a much more nuanced understanding of when and why Presidents provide public goods to their home regions, and particularly call into question the degree to which non-elite co-ethnics of Presidents benefit from their rule. We suggest in concluding that future studies should examine in detail the specific types of people who do or don't benefit from favoritist policies. Finally, it would also be useful to use survey data from other parts of the world to see if these results hold elsewhere or are specific to Africa.

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**Table 1: Co-Regional Presidents and Road Quality in Africa**  
 (Dependent Variable: Enumeration Area has Tarred/Paved Road)

Local Government Area	District	District	Province	Province
	(1)	(2)	(3)	(4)
Co-Regional President (t-1)	-0.312*** (0.076)	-0.309*** (0.075)	-0.057*** (0.024)	-0.052** (0.024)
Urban	0.239*** (0.016)	0.219*** (0.016)	0.303*** (0.019)	0.274*** (0.018)
Countries	12	12	11	11
Districts/Provinces	901	901	130	130
Observations	78,432	76,236	71,225	69,299
Individual Controls	no	yes	no	yes
District/Province fixed effects	yes	yes	yes	yes
Round fixed effects	yes	yes	yes	yes
Country*Round fixed effects	yes	yes	yes	yes

\*  $p \leq 0.10$ , \*\*  $p \leq 0.05$ ; \*\*\*  $p \leq 0.01$ ; robust standard errors clustered at the district level are in parentheses. Individual controls include age, age squared, gender, education and a Poverty Index (calculated from access to food, water, medical care, cooking fuel and cash income).

**Table 2: Co-Regional Presidents, Road Quality and Ethnicity**

Dependent Variable	Tarred/Paved Road	Tarred/Paved Road	Tarred/Paved Road	Tarred/Paved Road	Presidential Performance	Presidential Trust
Sample	All	Without Co-Ethnics	Excluding Home District	All	All	All
	(1)	(2)	(3)	(4)	(5)	(6)
Co-Ethnic President	-0.032** (0.015)		-0.025* (0.015)	-0.021 (0.015)	0.075*** (0.013)	0.093*** (0.011)
Co-District President		-0.360*** (0.122)		-0.308*** (0.078)	0.107*** (0.040)	0.094*** (0.029)
Countries	12	12	12	12	12	12
Districts	896	876	895	896	901	901
Observations	75,225	61,404	74,139	75,725	75,225	75,225
Additional Controls	no	no	no	no	yes	yes
District Fixed Effects	yes	yes	yes	yes	yes	yes
Round Fixed Effects	yes	yes	yes	yes	yes	yes
Country*Round Fixed Effects	yes	yes	yes	yes	yes	yes

\*  $p \leq 0.10$ , \*\*  $p \leq 0.05$ ; \*\*\*  $p \leq 0.01$ ; robust standard errors clustered at the regional/district level are in parentheses. Urban residence is included as a control but not listed here. The Co-Ethnic and Co-District variables are lagged by one year in columns 1-4 but not lagged in columns 5-6. Additional controls included in columns 5 and 6 include the country-year Polity2 score plus the same individual controls included in columns 2 and 4 of Table 1.

## Online Supplementary Materials

**Table A1: Data Availability**

<b>Country</b>	<b>Survey Years</b>	<b>Provinces</b>	<b>Observations/Province/Round</b>	<b>Districts</b>	<b>Observations/District/Round</b>
Benin	2005, <u>2008, 2011, 2014</u>	12	100.0	76	15.8
Ghana	2005, 2008, <u>2011, 2014</u>	10	179.7	131	13.7
Kenya	2005, 2008, 2011, <u>2014</u>	8	223.9	46 <sup>4</sup>	39.0
Malawi	2005, 2008, 2012, <u>2014</u>	[3]		27	66.7
Mali	2005, 2008, 2012, <u>2014</u>	9	135.4	49	24.9
Mozambique	2005, <u>2008, 2012, 2015</u>	11	160.5	118	15.0
Namibia	2006, <u>2008, 2012, 2014</u>	14	82.3	113	10.4
Nigeria <sup>5</sup>	2005, 2008, <u>2013, 2015</u>	6	395.1	37	64.1
Senegal	2005, 2008, <u>2013, 2014</u>	14	85.7	44	27.3
South Africa	2006, 2008, <u>2011, 2015</u>	9	252.4	52	43.7
Tanzania	2005, <u>2008, 2012, 2014</u>	30	60.8	133	13.7
Zambia	2005, 2009, <u>2013, 2014</u>	10	119.5	75	15.9
Average		12.1	163.2	75.1	23.2

Notes: Underlined or double-underlined years indicate different presidential regimes (with different birth regions) 12 months before the beginning of the survey. Bracketed data means there is no variation in presidential regimes at that level of local government across round 3-6 of the Afrobarometer.

<sup>4</sup> Kenya's provinces were dropped as a local government unit in favour of its counties in its new constitution in 2010. These counties were largely based on its districts, however, inasmuch as Buret district was subsequently split between Bomet and Kericho counties, we consolidated Bomet and Kericho into one county for the purposes of this exercise.

<sup>5</sup> We use Nigeria's six geopolitical zones at the province level and its 37 states at the district level inasmuch as survey coverage at the Local Government Area (LGA; n=774) is too sparse (with no survey data for the President's home LGA in rounds 5 and 6). Nigeria's geopolitical zones are organized by cultural affinity and roughly correspond in number and shape to its states in the first decade after independence.

**Table A2: Regime Transitions captured in the Afrobarometer dataset**

Country	Transition	Previous President	Province	District	Subsequent President	Province	District
Benin	2006	Mathieu Kérékou	Atakora	Toucounouna	Thomas Boni Yayi	Borgou	Tchaorou
Ghana	2009	<i>John Kufuor</i>	Ashanti	<i>Kumasi</i>	<i>John Atta Mills</i>	Western	<i>Tarkwa-Nsuaem</i>
Ghana	2012	John Atta Mills	Western	Tarkwa-Nsuaem	John Mahama	Northern	West Gonja
Kenya	2013	<i>Mwai Kibaki</i>	Central	<i>Nyeri</i>	<i>Uhuru Kenyatta</i>	Nairobi	<i>Nairobi</i>
Malawi	2012	Bingu wa Mutharika	Southern	Thyolo	Joyce Banda	Southern	Zomba
Mali	2012	Amadou Toumani Touré	Mopti	Mopti	Dioncounda Traore <sup>6</sup>	Koulakoro	Kati
Mali	2013	Dioncounda Traore	Koulakoro	Kati	Ibrahim B. Keïta	Sikasso	Koutiala
Mozambique	2005	Joaquim Chissano	Gaza	Chibuto	Armando Guebuza	Nampula	Murrupula
Mozambique	2015	Armando Guebuza	Nampula	Murrupula	Filipe Nyusi <sup>7</sup>	Cabo Delgado	Mueda
Namibia	2005	<i>Sam Nujoma</i> <sup>8</sup>	Omusati	Okahao	<i>Hifikepunye Pohamba</i>	Ohangwena	Ondobe
Nigeria	2007	Olusegun Obasanjo	South-West	Ogun	Umaru M. Yar'Adua <sup>9</sup>	North-West	Katsina
Nigeria	2010	Umaru M. Yar'Adua	North-West	Katsina	Goodluck Jonathan	South-South	Bayelsa
Senegal	2012	Abdoulaye Wade	Louga	Kébémer	Macky Sall	Fatick	Fatick
South Africa	2008	Thabo Mbeki	Eastern Cape	Chris Hani	Kgalema Motlanthe <sup>10</sup>	Gauteng	Ekurhuleni
South Africa	2009	Kgalema Motlanthe	Gauteng	Ekurhuleni	Jacob Zuma	KwaZulu-Natal	Uthungulu
Tanzania	2005	Benjamin Mkapa	MtWARA	Masasi	Jakaya Kikwete	Pwani	Bagamoyo
Zambia	2008	Levy Mwanawasa	Copperbelt	Mufulira	Michael Sata <sup>11</sup>	Muchinga	Mpika

Note: Column 3 lists the president in the previous round of the Afrobarometer, not the president immediately preceding the new President. We do not include in our analysis Presidents who were born outside the country such as Rupiah Banda (President of Zambia 2008-2011 and born in what is now Zimbabwe).<sup>12</sup> Transitions that are italicized are ones where the ethnicity of the President did not change.

<sup>6</sup> The regime of Dioncounda Traoré is only included in regressions with no lag or a six month lag (in round 5) or an 18-month lag (in round 6).

<sup>7</sup> The regime of Filipe Nyusi is only included in regressions with no lag (in round 6).

<sup>8</sup> The regime of Sam Nujoma is only included in regressions with a lag of one year or 18 months (in round 3).

<sup>9</sup> The regime of Umaru M. Yar'Adua is only included in regressions with a lag of six months (in round 4).

<sup>10</sup> The regime of Kgalema Motlanthe is only included in regressions with no lag (in round 4).

<sup>11</sup> The round 6 survey in Zambia took place from 3-31 October 2014; Michael Sata died in office on 28 October 2014.

<sup>12</sup> Banda would only have been included in regressions with a lag of 6 months (round 4) or 18 months (round 5).

**Table A3: Descriptive Statistics**

<b>Variable</b>	<b>Observations</b>	<b>Mean</b>	<b>St.Dev.</b>	<b>Minimum</b>	<b>Maximum</b>
Paved Roads (total)	66,571	0.474	0.499	0	1
Paved Roads (Round 3)	13,826	0.400	0.490	0	1
Paved Roads (Round 4)	14,364	0.460	0.498	0	1
Paved Roads (Round 5)	19,206	0.496	0.500	0	1
Paved Roads (Round 6)	19,175	0.516	0.500	0	1
Co-District President (t-1)	66,575	0.018	0.134	0	1
Co-Province President (t-1)	59,368	0.128	0.334	0	1
Co-Ethnic President (t-1)	63,669	0.163	0.369	0	1
% Urban	66,575	0.286	0.452	0	1

**Table A4: Different Lags**  
 (Dependent Variable: Enumeration Area has Tarred/Paved Road)

Local Government Area	District	District	Province	Province
	(1)	(2)	(3)	(4)
Co-Regional President (t-6 months)	-0.224*** (0.077)		-0.094*** (0.029)	
Co-Regional President (t-18 months)		-0.211*** (0.081)		-0.054** (0.024)
Countries	12	12	11	11
Districts/Provinces	898	900	130	130
Observations	77,232	77,232	70,025	70,025
District/Province fixed effects	yes	yes	yes	yes
Round fixed effects	yes	yes	yes	yes
Country*Round fixed effects	yes	yes	yes	yes

\*  $p \leq 0.10$ , \*\*  $p \leq 0.05$ ; \*\*\*  $p \leq 0.01$ ; robust standard errors clustered at the regional/district level are in parentheses. Urban residence is included as a control but not listed here.

**Table A5: Co-District Presidents and Road Quality in Africa, Robustness Checks**  
 (Dependent Variable: Enumeration Area has Tarred/Paved Road)

Sample	Rural	Urban	All	All	All	Without Enumerators Co-ethnic w/ President
	(1)	(2)	(3)	(4)	(5)	(6)
Co-District President (t-1 year)	-0.331*** (0.118)	-0.137** (0.057)	-0.351*** (0.087)	-0.318*** (0.107)	-0.308** (0.147)	-0.374*** (0.105)
Co-District Vice-President (t-1 year)			-0.047 (0.050)			
Co-District Minister of Transport (t-1 year)				-0.083 (0.064)		
Co-District President (t-1 year)					-0.0006 (0.014)	
* Polity2 Score (t-1 year)					0.172 (0.115)	
Polity2 Score (t-1 year)						
Countries	12	12	7	7	12	12
Districts	868	545	501	577	901	847
Observations	55,081	23,351	52,212	47,417	78,432	58,109
District fixed effects	yes	yes	yes	yes	yes	yes
Round fixed effects	yes	yes	yes	yes	yes	yes
Country*Round fixed effects	yes	yes	yes	yes	yes	yes

\*  $p \leq 0.10$ , \*\*  $p \leq 0.05$ ; \*\*\*  $p \leq 0.01$ ; robust standard errors clustered at the regional/district level are in parentheses. Urban residence is included as a control in columns 3-5 but not listed here. We use native language as a proxy for co-ethnicity in column 6 as ethnic identity data for fieldworkers is only available in round 6.

**Table A6: Individual Country Results**  
 (Dependent Variable: Enumeration Area has Tarred/Paved Road)

	Co-District President	Number of Districts	Observations
Only			
Ghana	-0.263*** (0.045)	131	7188
Kenya	-0.282*** (0.091)	46	7174
Malawi	-0.556 (0.333)	27	7207
Mali	-0.200*** (0.023)	49	4876
Namibia	0.000 (0.200)	113	4687
Nigeria	-0.403*** (0.087)	37	9482
South Africa	-0.210*** (0.071)	52	9085
Zambia	-0.389*** (0.051)	75	4778

\*  $p \leq 0.1$ , \*\*  $p \leq 0.05$ , \*\*\*  $p \leq 0.01$ . All regressions include the same controls as in column 1 of Table 3. The data for Benin, Mozambique, Senegal and Tanzania are missing observations from the Presidential homeland for one round each and thus we do not report results from these four countries here.

**Table A7: Excluding One Round at a Time**  
 (Dependent Variable: Enumeration Area has Tarred/Paved Road)

Excluding Round	3	4	5	6
	(1)	(2)	(3)	(4)
Co-District President	-0.322*** (0.084)	-0.332*** (0.058)	-0.306*** (0.094)	-0.288*** (0.107)
Countries	12	12	12	12
Districts	885	889	878	861
Observations	62,245	61,764	55,627	55,660
District fixed effects	yes	yes	yes	yes
Round fixed effects	yes	yes	yes	yes
Country*Round fixed effects	yes	yes	yes	yes

\*  $p \leq 0.10$ , \*\*  $p \leq 0.05$ ; \*\*\*  $p \leq 0.01$ ; robust standard errors clustered at the regional/district level are in parentheses. Urban residence is included as a control but not listed here.

**Table A8: Other Public Goods**

Dependent Variable	Co-District President	Number of Districts	Observations
Electricity	-0.047 (0.058)	901	78,345
Piped Water	-0.015 (0.045)	901	78,031
Sewage	-0.090 (0.080)	901	78,103
Cell Phone Service	-0.003 (0.034)	885	62,041
Post Office	-0.053 (0.040)	900	77,446
School	-0.012 (0.034)	900	77,996
Police Station	-0.040 (0.058)	899	77,287
Health Clinic	-0.052 (0.056)	900	77,272
Market Stalls	-0.145** (0.074)	900	77,843

\*  $p \leq 0.1$ , \*\*  $p \leq 0.05$ , \*\*\*  $p \leq 0.01$ . All regressions include the same controls as in column 1 of Table 3 and data from 13 countries. The data for Cell Phone Service is only available for rounds 4-6.