The Death of Distance: Mobile Internet and Political Trust in Africa

Working Paper

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Introduction

- Puzzle: attitudes towards leaders and governments need not correspond to economic outcomes
  - Developing world: rural areas show higher government approval than urban areas, despite facing lower economic development and public good provision *McKay et al., 2023; Bland et al. 2023; Brinkerhoff et al. 2018*
- Disconnect can stem from:
  - Behavioural patterns: lower expectations *Gottlieb, 2016; McKay et al., 2023; Provenzano, 2024; Li, 2004*
  - Cultural factors: clientelist network *Henn, 2023; Adida et al., 2020; Fujiwara and Wantchekon, 2013*

Introduction

- Informations frictions: prevent citizens from accurately assessing government performance *Bhandari et al. 2023; Dunning et al. 2019; Chong et al. 2015*
- Beyond the urban-rural divide: greater distance from the capital city reduces access to political information by limiting direct observations of state activities
- We investigate how distance to the capital city shapes opinion on national politics and whether access to information might mitigate this pattern

Empirical strategy overview

Combine Afrobarometer geocoded surveys data across 20 Sub-Saharan countries between 2011-2021, with GSMA digital maps of mobile internet coverage

We examine **(1)** how distance from the capital city shapes opinion on national politics and **(2)** whether access to information might mitigate this pattern

1. Effect of distance from the capital city on political trust: **Border discontinuity design**
   - Modern national borders that arbitrarily divided historical ethnic homelands *Michalopoulos and Papaioannou, 2014; Provenzano, 2024; McCauley and Posner, 2015*
2. Effect of access to information on this pattern: **Instrumental variable**
   - Mobile internet diffusion in the 2010s: informational shock on national politics
   - Instrument mobile internet infrastructure with lightning strike patterns *Guriev et al., 2021; Manacorda and Tesei, 2020; Cariolle and Carrol, 2024*

Main results

1. **Effect of distance from the capital city on political trust**
   - Remote areas (↑ distance) show more positive opinion on national politics than areas near capitals
     - 29% higher political trust relative to the unconditional standard deviation
     - Robust to our border discontinuity design
2. **Effect of access to information on this pattern**
   - Mobile internet erase the spatial divide in opinions on national politics
     - Bring previously disconnected remote areas in line with the more critical assessments found near capitals
     - Only in countries with state-controlled media and weak institutions
     - Robust to our IV strategy
3. **Effect of access to information on political accountability**
   - Greater political accountability
     - Citizens become more critical in their assessments of the country's performance
     - Show greater willingness to sanction the ruling party through voting

Main results

- Physical distance is an informational barrier that might preserve positive perceptions despite poor governance
- Near capitals: frequent interactions with the state institutions creates informed discontents
  $\rightarrow$ Compare actual performance with promised outcomes, leading to more critical assessments
- Remote areas: infrequent exposure to state institutions
  $\rightarrow$ Lack access to information about government activities due to limited direct experience
- Mobile internet expansion reduces information costs: can give remote citizens access to information about government activities and break their detachment from national politics

Literature contribution

- Political economy of the capital city
  - Provenzano, 2024: remote areas consume less news and maintain higher trust in leaders despite receiving fewer public goods
  - Campante and Do, 2014: isolated capitals see lower citizen awareness of state activities
  - Michalopoulos and Papaioannou, 2014: national institutions' effects weaken with distance from capitals

$\rightarrow$ Physical distance from the capital is an informational barrier that might preserve positive perceptions despite poor governance

Literature contribution

- Effect of internet on political behaviour
  - Guriev et al. 2021: 3G access reduces government approval by exposing misgovernance
  - Manacorda and Tesei, 2020: mobile internet facilitates political mobilization
  - Cariolle et al. 2024: internet access can facilitates political misperceptions

  $\rightarrow$ Internet access reduces information frictions on government activities that have isolated remote areas

- Physical isolation from capitals need not permanently determine political attitudes

  $\rightarrow$ Internet expansion can reshape long-standing spatial patterns by connecting remote citizens to national politics

Data

- Afrobarometer surveys accross 20 Sub-Saharan countries: rounds 5 to 8 (2011-2021)
  - Geolocated information on public opinion, media consumption and demographic characteristics at the individual level
  - Distance from the capital city
- GSMA: 2G/3G coverage
  - 1×1-kilometer binary grid cells
  - Region level mean coverage
  - Weighted with population density grid cells

Figure 1: Country Sample and Capital Cities

Empirical strategy - Distance and political trust

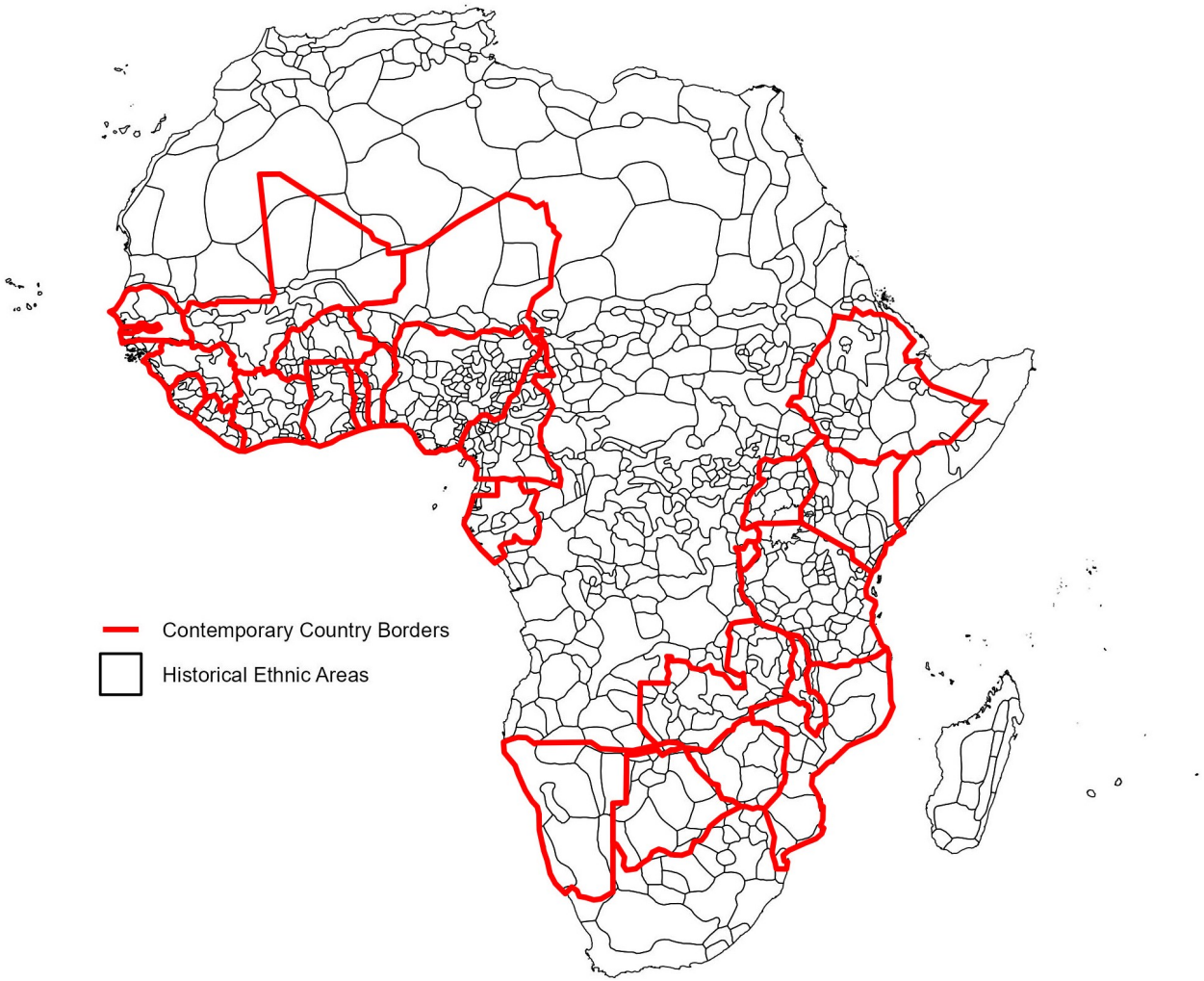
Effect of distance from the capital city on political trust

$$trust_{irct} = \beta_0 + \beta_1 dist_{irc} + \Gamma X_{ir}^{'} + \mu_{ct} + \varepsilon_{irct} \quad (1)$$

- $trust_{irct}$: Average trust in parliament and president
- $dist_{irc}$: Normalized distance from the capital
  Michalopoulos and Papaioannou, 2014
- $X_{ir}^{'}$: Individual and regional controls
- μ_{ct}: Country $\times$ round fixed effects
- ε_{irct}: Error term
- Robust standard errors clustered at the region x round level

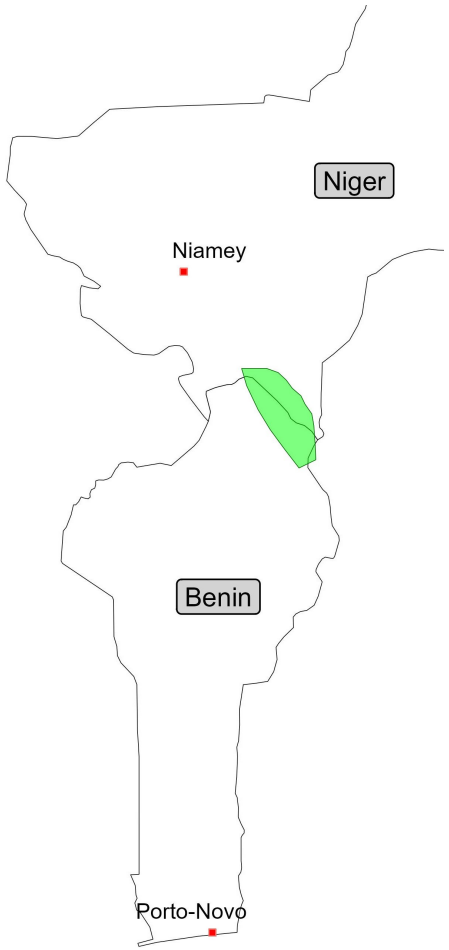
Empirical strategy - Distance and political trust

Figure 2: Historical Ethnic Areas and Contemporary National Boundaries



Empirical strategy - Distance and political trust

Figure 3: Exemple: Dendi Ethnic Group



$$trust_{irct} = \beta_0 + \beta_1 dist_{irc} + \Gamma X'_{ir} + \nu_{\mathbf{e}} + \mu_{ct} + \varepsilon_{irct} \quad (2)$$

Empirical strategy - Distance and political trust

Identification assumptions

1. Two individuals living in the same historical ethnic region share similar geographical, social, and historical traits, except for their distance from the capitals

2. The differences observed on either side of the country border are not attributable to institutional differences

$$trust_{irct} = \beta_0 + \beta_1 dist_{irc} + \Gamma X'_{ir} + \theta Z'_{ct} + \nu_{\mathbf{e}} + \lambda_t + \varepsilon_{ict} \quad (3)$$

Distance increases political trust

Table 1: Effect of distance from the capital on political trust

	OLS			
	Political trust			
	Base sample		Border sample	
	(1)	(2)	(3)	(4)
Distance from the capital	0.300***	0.298***	0.618***	0.341**
	(0.04)	(0.03)	(0.15)	(0.16)
Individual & regional controls	Yes	Yes	Yes	Yes
Country controls	Yes	No	Yes	No
Round FE	Yes	No	Yes	No
Country X Round FE	No	Yes	No	Yes
Ethnic homeland FE	No	No	Yes	Yes
Observations	107,117	111,570	10,790	11,924
Adjusted-R^2	0.105	0.156	0.140	0.172

Notes: The border sample includes individuals residing within a 40-kilometer buffer around a country border that overlaps with a historical ethnic homeland, as defined by Murdock (1959). Robust standard errors clustered at the region x round level for the base sample and ethnic homeland x region x round level for the border sample are in parentheses. The set of individual controls includes measures of: normalized distance from the largest non-capital city, age, age squared, sex, education, employment status, rural/urban situation, personal economic conditions perception, interest in politics, TV news consumption, radio news consumption, newspaper consumption. (3) and (4) also include a measure of ethnic discrimination. The set of regional controls includes measures of: nighttime light, population density, region area, president birthplace dummy. The set of country controls includes: log(GDP.p.c.), log(area), V-Dem Polyarchy index, World Bank corruption index, political regime type, colonial origin. *** / ** / * represent significance at the 0.01 / 0.05 / 0.10 levels, respectively.

Distance increases political trust

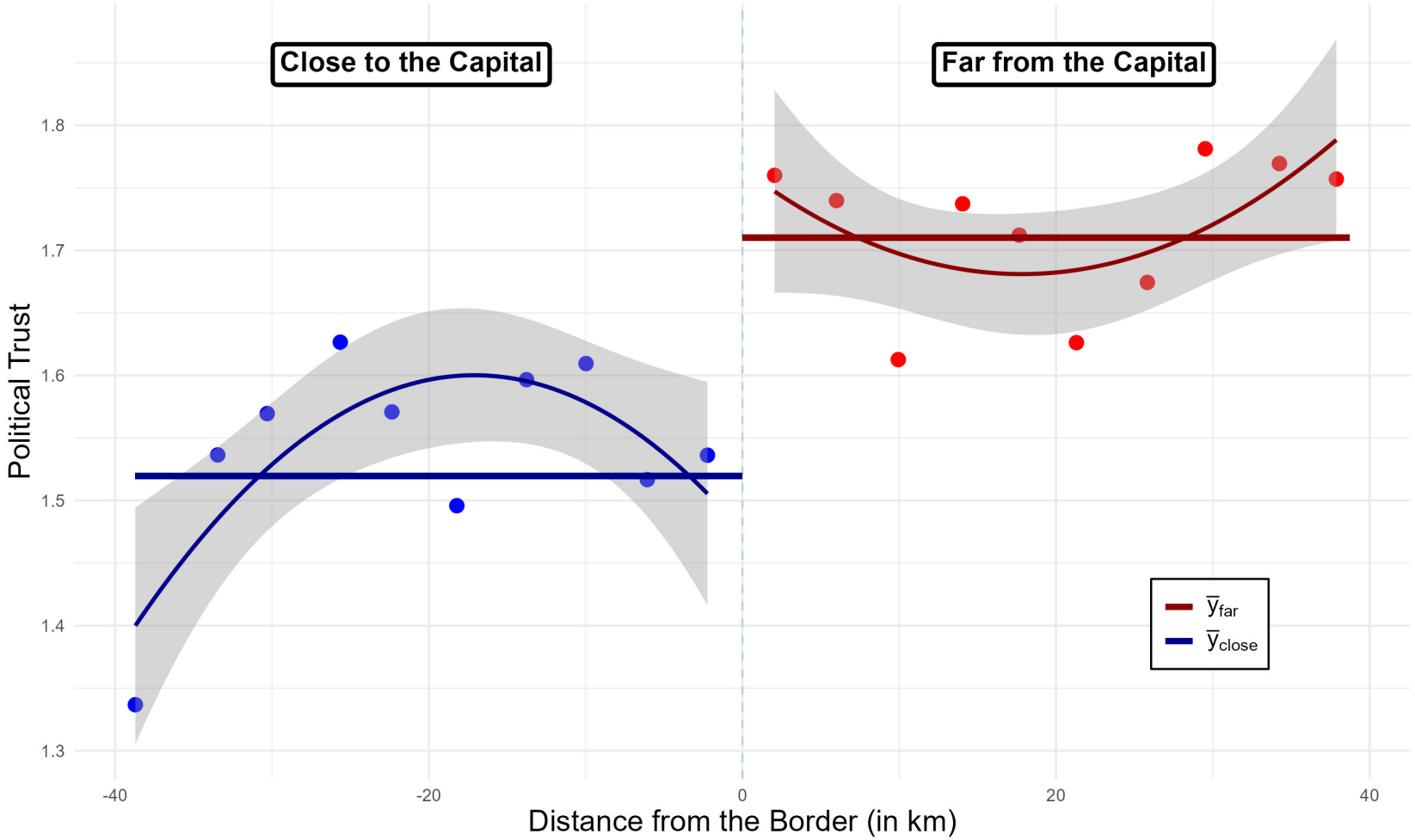


Figure 4: Border discontinuity - *Based on regression estimates from (3) of Table 1*

Empirical strategy - Internet coverage and spatial patterns of opinion

Effect of internet coverage on political trust by distance

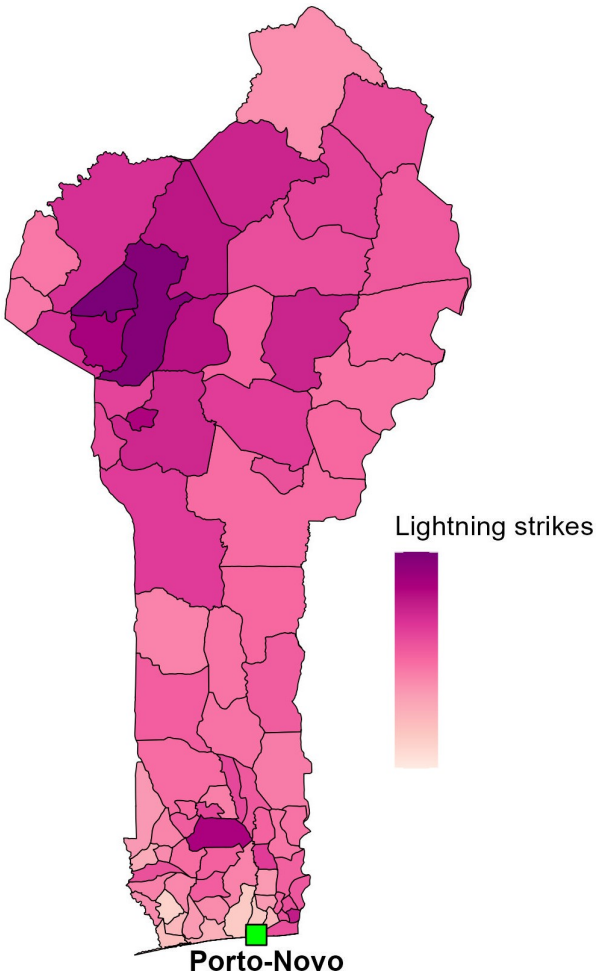
$$\begin{aligned} trust_{irct} =& \beta_0 + \beta_1 dist_{irc} + \beta_2 \textbf{internet\_coverage}_{irct} + \beta_3 \textbf{dist} \times \textbf{internet\_coverage}_{irct} \\ &+ \Gamma X'_{ir} + \mu_{ct} + \varepsilon_{irct} \end{aligned} \tag{4}$$

internet_coverage$_{irct}$: Regional average of internet coverage weighted by population density *Guriev et al., 2021, Cariolle and Carroll, 2024*

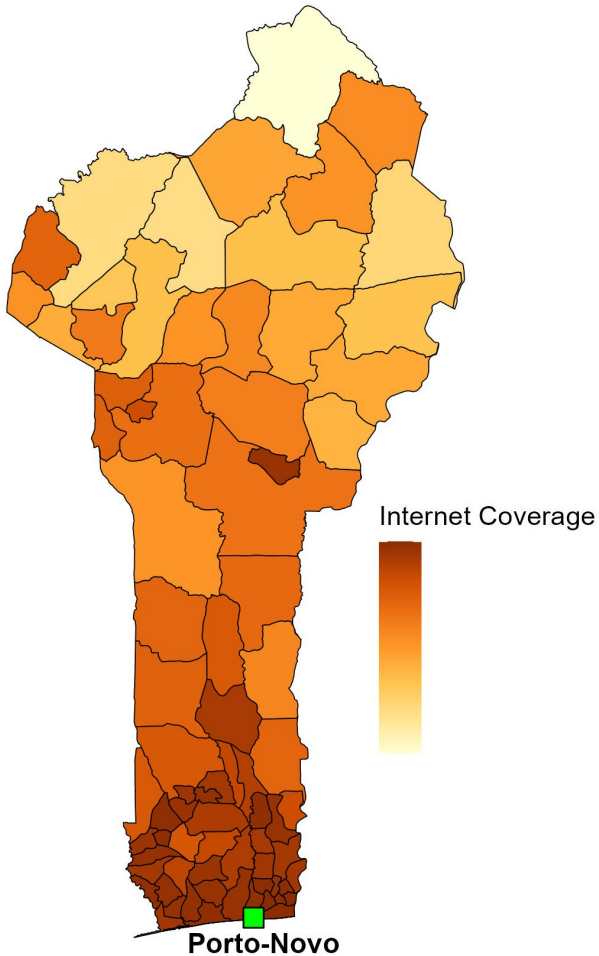
- **Reverse causality:** Areas with higher political trust might experience less deployment of internet infrastructure

Empirical strategy - Internet coverage and spatial patterns of opinion

Figure 5: Example: Benin Lightning strike and Internet Coverage



(a) Lightning strike



(b) Internet coverage (2020)

Empirical strategy - Internet coverage and spatial patterns of opinion

Lightning strike instrument

- Instrument internet coverage using regional lightning strike patterns
  Manacorda and Tesei, 2020; Guriev et al., 2021; Cariolle and Carolle, 2024

- Areas with frequent lightning strike face higher infrastructure deployment and maintenance costs, while these weather patterns are plausibly exogenous to political trust

- Average daily lightning strike at the regional level using VHRFC data over 1998-2013, weighted by population density

Geographical instrument $\rightarrow$ focus on the base sample

Empirical strategy - Internet coverage and spatial patterns of opinion

First-stage

$$\textbf{internet\_coverage}_{irct} = \beta_0 + \beta_1 \textbf{lightning\_strike}_r \times t + \Gamma X_{ir}^{'} + \mu_{ct} + v_{irct} \tag{5}$$

$$\textbf{dist} \times \textbf{internet\_coverage}_{irct} = \beta_0 + \beta_1 \textbf{dist} \times \textbf{lightning\_strike}_r \times t + \Gamma X_{ir}^{'} + \mu_{ct} + v_{irct} \tag{6}$$

Second-stage

$$trust_{irct} = \beta_0 + \beta_1 dist_{irc} + \beta_2^{2S} \textbf{internet\_coverage}_{irct} + \beta_3^{2S} \textbf{dist} \times \textbf{internet\_coverage}_{irct} + \Gamma X_{ir}^{'} + \mu_{ct} + \varepsilon_{irct} \tag{7}$$

Internet mitigates spatial patterns of opinion

Table 2: Effect of internet coverage on political trust by distance

	Base sample				
	OLS	First Stage			2SLS
	Political trust	Internet coverage		Distance × Internet coverage	Political trust
	(1)	(2)		(3)	(4)
Distance from the capital	0.453***				1.523***
	(0.05)				(0.56)
Internet coverage	-0.015				1.770**
	(0.06)				(0.69)
Distance from the capital × Internet coverage	-0.466***				-2.950**
	(0.10)				(1.45)
Lightning strikes		-0.002***		-0.000	
		(0.00)		(0.00)	
Distance from the capital city × Lightning strikes		-0.000		-0.001***	
		(0.00)		(0.00)	
SW *F* - Lightning strikes	-	-	13.74	-	-
SW *F* - Distance × Lightning strikes	-	-	8.62	-	-
Individual & regional controls	Yes	Yes		Yes	Yes
Country X Round FE	Yes	Yes	-	Yes	Yes
Observations	111,570	113,243	113,243	111,570	
Adjusted-R^2	0.158	-	-	-	

Notes: *Notes*: Robust standard errors clustered at the region x round level. The set of individual controls includes measures of: normalized distance from the largest non-capital city, age, age squared, sex, education, employment status, rural/urban situation, personal economic conditions perception, ethnic discrimination, interest in politics, TV news consumption, newspaper consumption, radio consumption. The set of regional controls includes measures of: nighttime light, population density, region area, president birthplace dummy. *** / ** / * represent significance at the 0.01 / 0.05 / 0.10 levels, respectively.

Internet mitigates spatial patterns of opinion

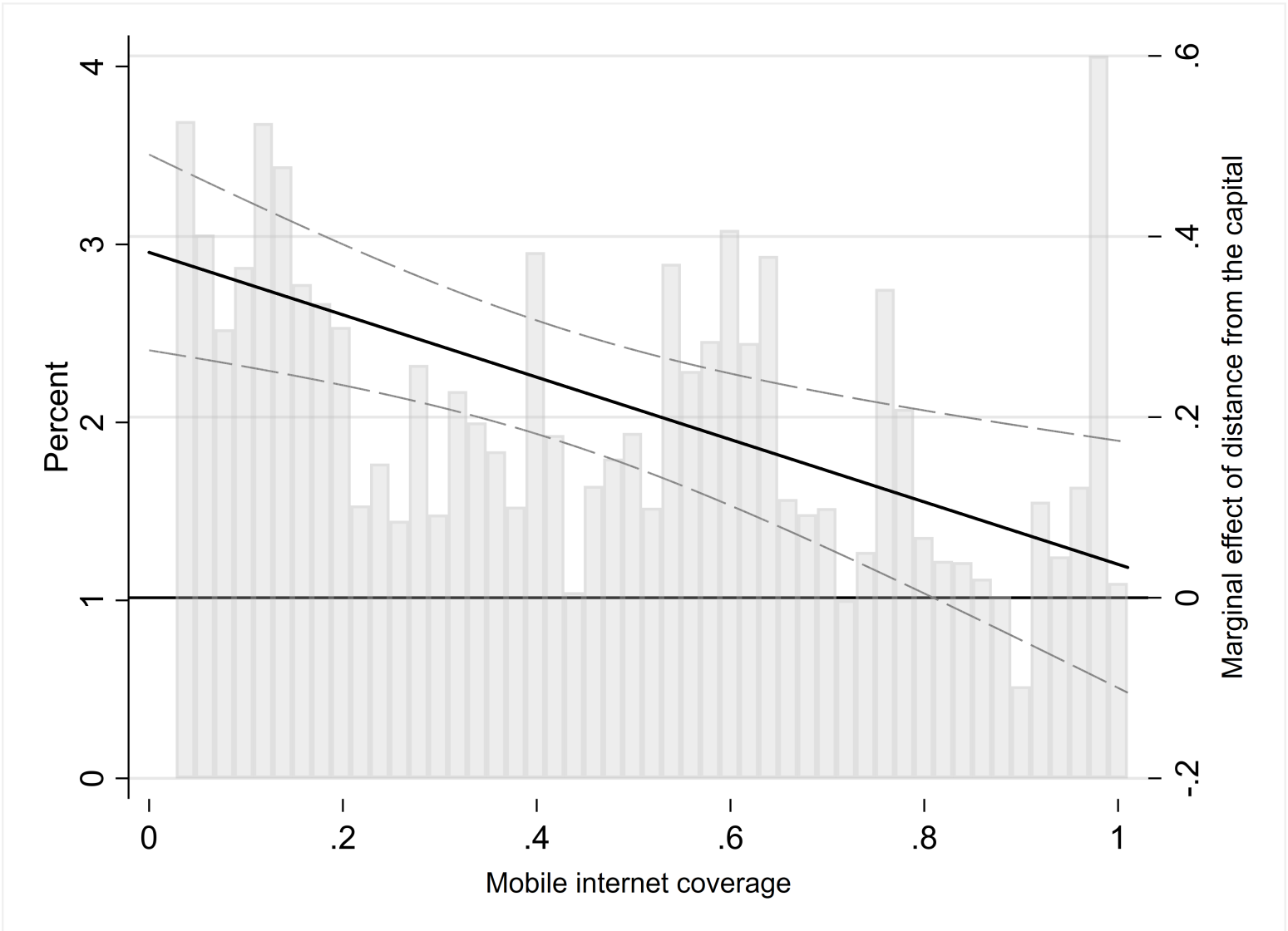


Figure 6: Marginal effect of Distance from the capital as a function of Internet coverage

Internet is effective in countries with weak institutions

Table 3: Media and institutions freedom

	2SLS: Political trust			
	Base sample			
	Media		Institutions	
	Free	Captured	Free	Captured
	(1)	(2)	(3)	(4)
Distance from the capital	-8.382	1.083**	2.367	0.938***
	(24.71)	(0.42)	(1.50)	(0.32)
Internet coverage	-5.260	1.004	2.653*	0.762
	(19.11)	(0.74)	(1.49)	(0.69)
Distance from the capital × Internet coverage	18.335	-2.149*	-5.132	-1.524**
	(52.59)	(1.25)	(3.92)	(0.77)
Individual & regional controls	Yes	Yes	Yes	Yes
Country X Round FE	Yes	Yes	Yes	Yes
Observations	50,288	61,282	51,737	59,833

Notes: Robust standard errors clustered at the region x round level are in parentheses. The set of individual controls includes measures of: normalized distance from the largest non-capital city, age, age squared, sex, education, employment status, rural/urban situation, personal economic conditions perception, ethnic discrimination, interest in politics, TV news consumption, newspaper consumption, radio consumption. The set of regional controls includes measures of: nighttime light, population density, region area, president birthplace dummy. *** / ** / * represent significance at the 0.01 / 0.05 / 0.10 levels, respectively.

Internet enchances political accountability

Table 4: Political accountability

	2SLS	
	Vote against ruling party	Country performance
	Base sample	Base sample
	(1)	(2)
Distance from the capital	-0.932***	1.874***
	(0.28)	(0.65)
Internet coverage	-1.163***	2.089***
	(0.41)	(0.77)
Distance from the capital × Internet coverage	2.104***	-4.200**
	(0.74)	(1.69)
Individual & regional controls	Yes	Yes
Country X Round FE	Yes	Yes
Observations	74,959	111,696

Notes: Robust standard errors clustered at the region x round level are in parentheses. The set of individual controls includes measures of: normalized distance from the largest non-capital city, age, age squared, sex, education, employment status, rural/urban situation, personal economic conditions perception, ethnic discrimination, interest in politics, TV news consumption, newspaper consumption, radio consumption. The set of regional controls includes measures of: nighttime light, population density, region area, president birthplace dummy. *** / ** / * represent significance at the 0.01 / 0.05 / 0.10 levels, respectively.

Internet is effective on low educated and beyond the urban-rural divide

Table 5: Individual heterogeneity

	2SLS: Political trust			
	Base sample			
	Education		Urban/Rural	
	$<$ Secondary	$\geq$ Secondary	Urban	Rural
	(1)	(2)	(3)	(4)
Distance from the capital	1.467***	1.440	1.074**	2.666***
	(0.45)	(1.44)	(0.54)	(0.89)
Internet coverage	1.613**	1.632	0.525	4.471***
	(0.63)	(1.34)	(0.62)	(1.48)
Distance from the capital $\times$ Internet coverage	-2.901**	-2.688	-1.787	-5.898**
	(1.24)	(3.22)	(1.12)	(2.55)
Individual & regional controls	Yes	Yes	Yes	Yes
Country X Round FE	Yes	Yes	Yes	Yes
Observations	79,394	32,176	42,509	69,061

Notes: Robust standard errors clustered at the region x round level are in parentheses. The set of individual controls includes measures of: normalized distance from the largest non-capital city, age, age squared, sex, education, employment status, rural/urban situation, personal economic conditions perception, ethnic discrimination, interest in politics, TV news consumption, newspaper consumption, radio consumption. The set of regional controls includes measures of: nighttime light, population density, region area, president birthplace dummy. Education, rural/urban, and age controls are omitted from columns (1-2), (3-4), and (5-8), respectively.*** / ** / * represent significance at the 0.01 / 0.05 / 0.10 levels, respectively.

Conclusion

- We document how distance from capitals creates information barriers that shape citizens' political behaviour
  - Remote areas have more positive opinions on national politics and country's performance despite limited experience with state institutions
  - Broader literature on the disconnect between citizens' attitudes and government performance in developing countries
- We show that internet expansion can disrupt these spatial patterns in political behaviour
  - Reduces information frictions that have isolated remote populations but only in countries with state-controlled media and weak institutions
  - Internet access brings remote citizens' poltical assessments in line with the more critical views found near capitals
- Previous works highlights that state capacity declines with distance from the capital, whith implications for economic development
  - We demonstrate that internet can reshape spatial patterns in political behaviour, suggesting that physical isolation need not permanently determine political attitudes