

# Coup-Proofing via Capital Relocation

DSAN 6750 / PPOL 6805: GIS for Spatial Data Science

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## Introduction

Several previous studies have found robust relationships between spatial properties of a country's **capital city** and that country's propensity for **conflict** and **misgovernance**.

Perceptions of this linkage also have an effect on “coup-proofing” decisions made by national governments. A recent BBC interview with Equatorial Guinea's President Teodoro Obiang, for example, highlighted this as a factor behind his decision to relocate the capital city:

It's the remoteness of Oyala that makes it so appealing to President Obiang. In a rare interview he described how rebels had recently plotted a seaborne assault on his palace in the current capital, Malabo. ‘We need a secure place for my government and for future governments. That's why we have created Oyala, to guarantee the government of Equatorial Guinea.’ (Sackur 2012)

This case is far from exceptional, as an even more recent *Washington Post* article points out with respect to Myanmar's decision to move its capital from Yangon to Naypyidaw:

Analysts have described the decision as motivated by a desire to secure the military's seat of power from any threat of protests or invasions. (Berger 2021)

Most of these studies, however, are based on observations of **conflict events**. In this study, we study the more fundamental variable of a capital's distance from the **population centroid** of the country.

## Literature Review

Campante, Do, and Guimaraes (2019) analyzes the relationship between the location of a **capital city** and the degree of conflict and misgovernance in a given country. Their two key findings are that:

Conflict is more likely to emerge (and dislodge incumbents) closer to the capital

and

Isolated capitals are associated with misgovernance.

This first finding is illustrated in Figure 1

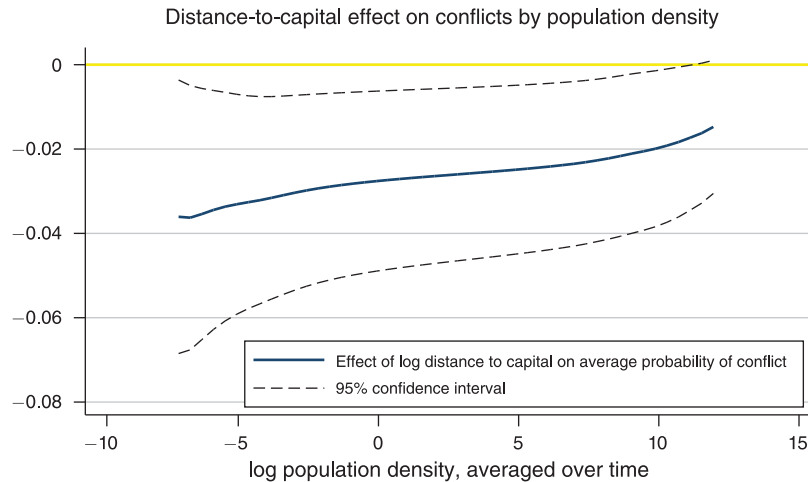


FIGURE 1. EFFECT OF LOG DISTANCE TO CAPITAL ON CONFLICTS AS A FUNCTION OF LOG POPULATION DENSITY

Figure 1

## Methodology

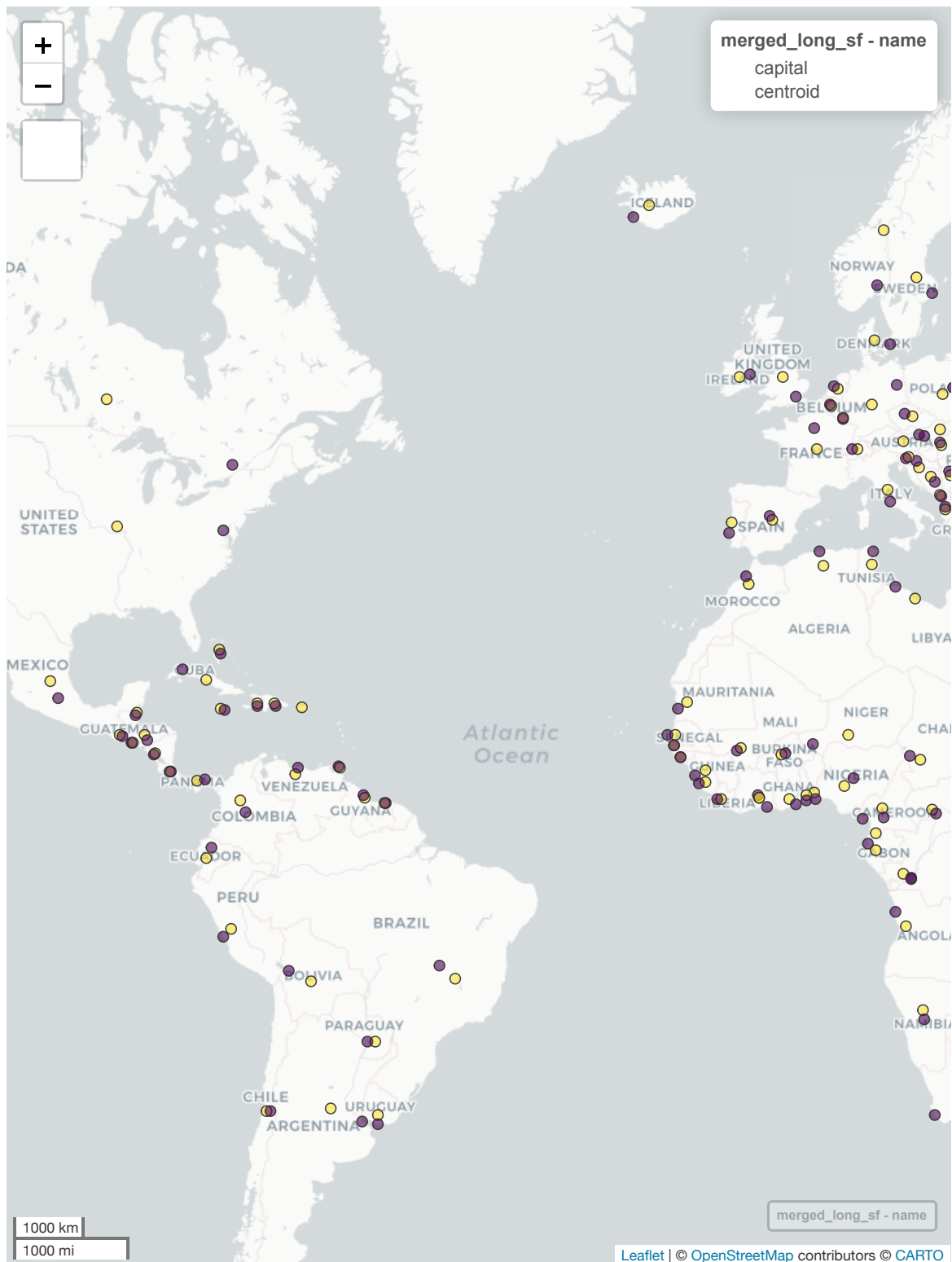
The **population centroids** we use herein might require some explanation, since the term “centroid” can be ambiguous.

Here, the population centroids are drawn from Hall et al. (2019)

## Exploratory Data Analysis (EDA)

Here we plot the base GIS objects we’re analyzing: the location of each **capital city** (in purple) and each **population centroid** (in yellow).

Source: [Article Notebook](#)

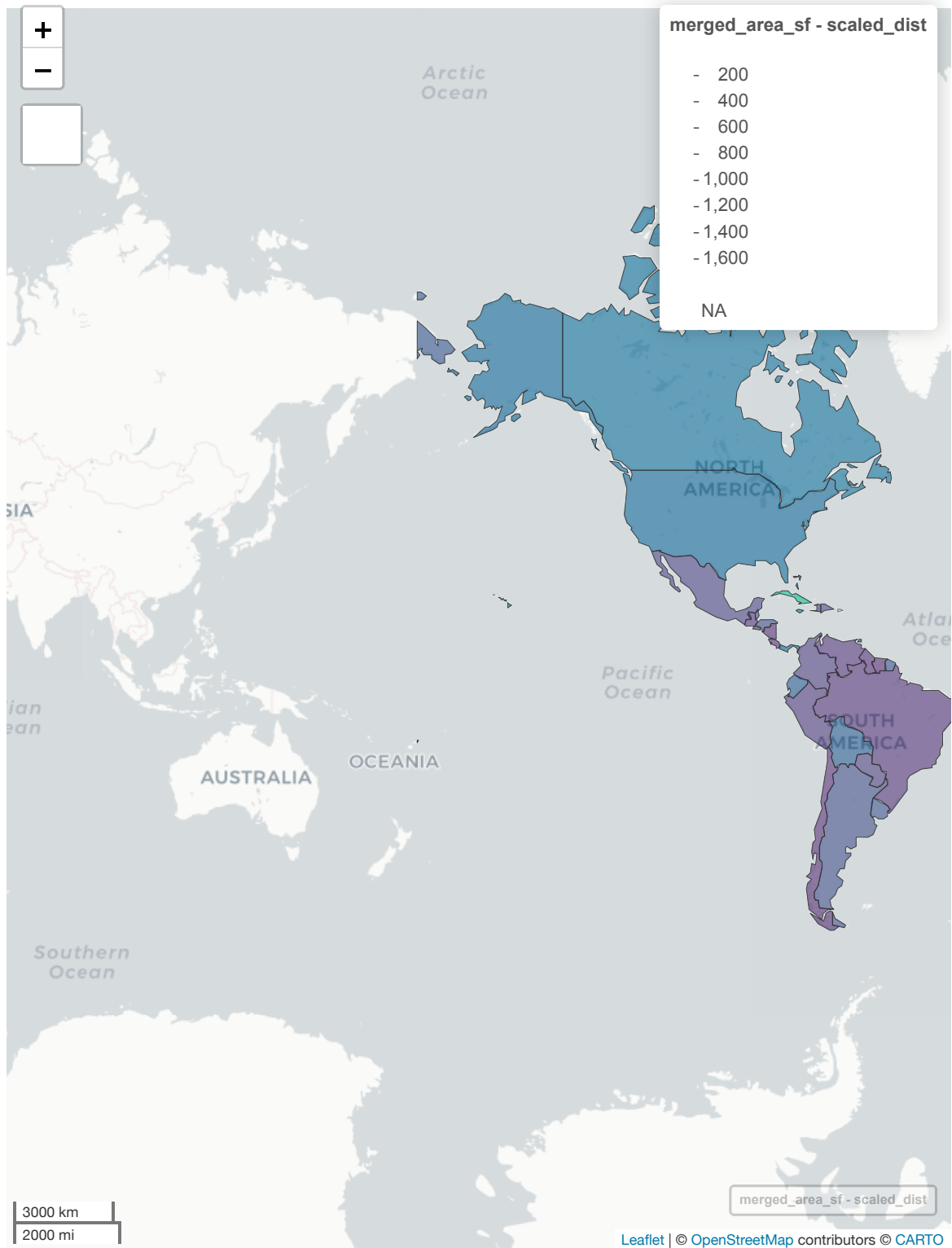


Source: [Article Notebook](#)

We then construct an **area-normalized** measure of capital-centroid distance  $\text{dist}^{\text{AN}}$ , using the formula

$$\text{dist}_i^{\text{AN}} = \text{dist}_i / \sqrt{\text{area}_i}.$$

A plot of this measure by country looks as follows:

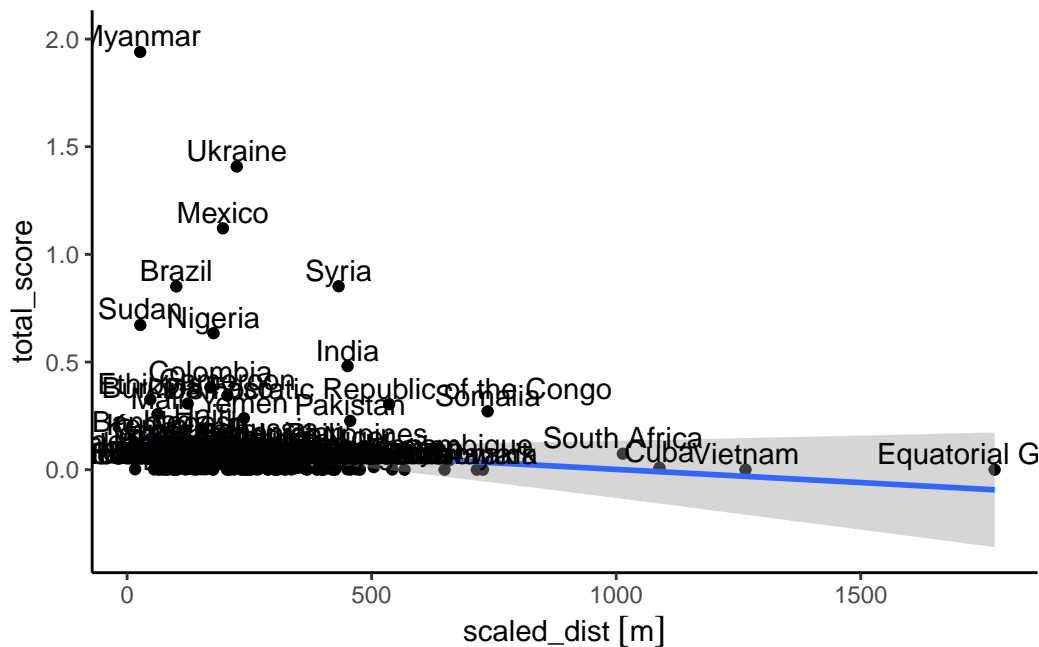


Source: [Article Notebook](#)

## Hypothesis Testing (Regression)

geounit	iso_3166_2	OBJECTID	NAME	ENTRANCE	AREA	list	area scaled to list geometry	centroid	capital
Tanzania	TZA	227	Tanzania	0	Dar es Salaam	324758858007	145.058007	MULTIPOINT	POINT
						[m]	[m]	((((-33.90371(36.5813 (39.2664	
								-0...	-
								5.612844)	6.798067)
Canada	CAN	42	Canada	0	Ottawa	1410818788706	890201	MULTIPOINT	POINT
						[m]	[m]	((((-122.84 92.673 75.70196	
								49,...	51.33108) 45.41864)
United States of America	USA	244	United States	0	Washington D.C.	1227411147406	82022	MULTIPOINT	POINT
						[m]	[m]	((((-122.84 91.24719 77.01136	
								49,...	39.43566) 38.9015)
Kazakhstan	KAZ	117	Kazakhstan	0	Nur-Sultan	2270742699708	200910	MULTIPOINT	POINT
						[m]	[m]	((((-87.35997(69.7252 (71.42777	
								49...	49.45229) 51.18113)
Uzbekistan	UZB	246	Uzbekistan	0	Tashkent	1680144106233	098505	MULTIPOINT	POINT
						[m]	[m]	((((-55.96819(67.77264 (69.26882	
								41...	40.30358) 41.30383)
Papua New Guinea	PNG	175	Papua New Guinea	0	Port Moresby	2898874528430	770425	MULTIPOINT	POINT
						[m]	[m]	((((-141.0002(146.2921 (147.1925	
								-2...	-
								7.014699)	9.464708)

Source: [Article Notebook](#)



Source: [Article Notebook](#)

## Discussion

## Conclusion

Our evidence indicates that the spatial dynamics of **conflict** differ from the spatial dynamics of **misgovernance**. Whereas

Berger, Miriam. 2021. “Myanmar’s Military Built a New Capital as a Haven for Power. Other Countries Have Tried That, Too.” *Washington Post*, February. <https://www.washingtonpost.com/world/2021/02/06/myanmars-military-built-new-capital-haven-power-other-countries-have-tried-that-too/>.

Campante, Filipe R., Quoc-Anh Do, and Bernardo Guimaraes. 2019. “Capital Cities, Conflict, and Misgovernance.” *American Economic Journal: Applied Economics* 11 (3): 298–337. <https://doi.org/10.1257/app.20170111>.

Hall, Ola, Maria Francisca Archila Bustos, Niklas Boke Olén, and Thomas Nedomysl. 2019. “Population Centroids of the World Administrative Units from Nighttime Lights 1992-2013.” *Scientific Data* 6 (1): 235. <https://doi.org/10.1038/s41597-019-0250-z>.

Sackur, Stephen. 2012. “Equatorial Guinea: Obiang’s Future Capital, Oyala.” *BBC News*, December. <https://www.bbc.com/news/magazine-20731448>.