

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

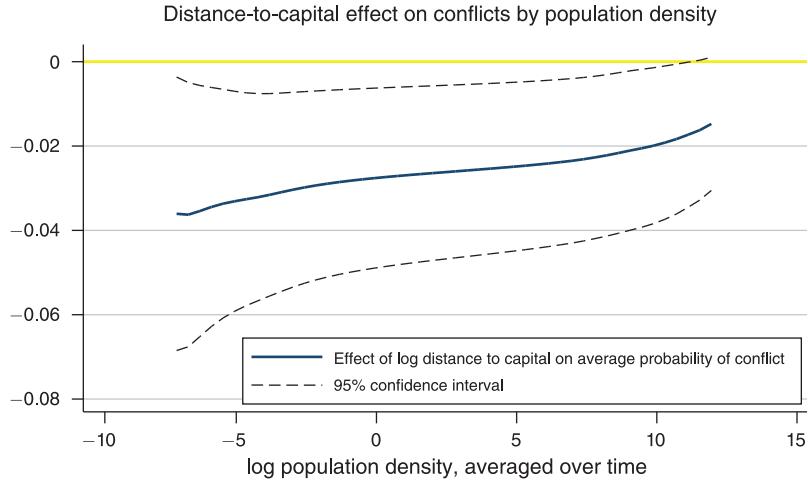


FIGURE 1. EFFECT OF LOG DISTANCE TO CAPITAL ON CONFLICTS AS A FUNCTION OF LOG POPULATION DENSITY

Figure 1

Methodology

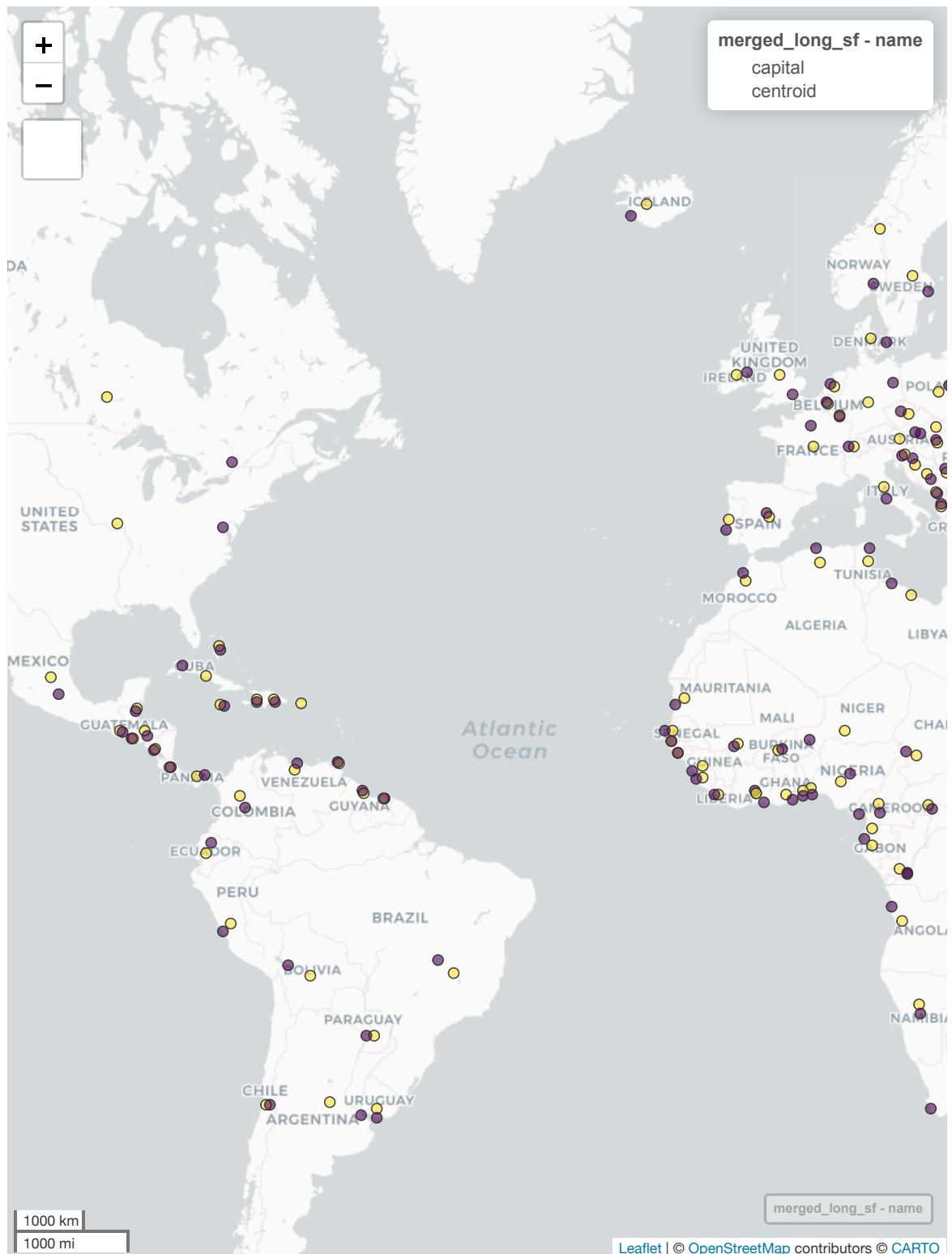
The **population centroids** we use herein might require some explanation, since the term “centroid” can be ambiguous.

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](#)

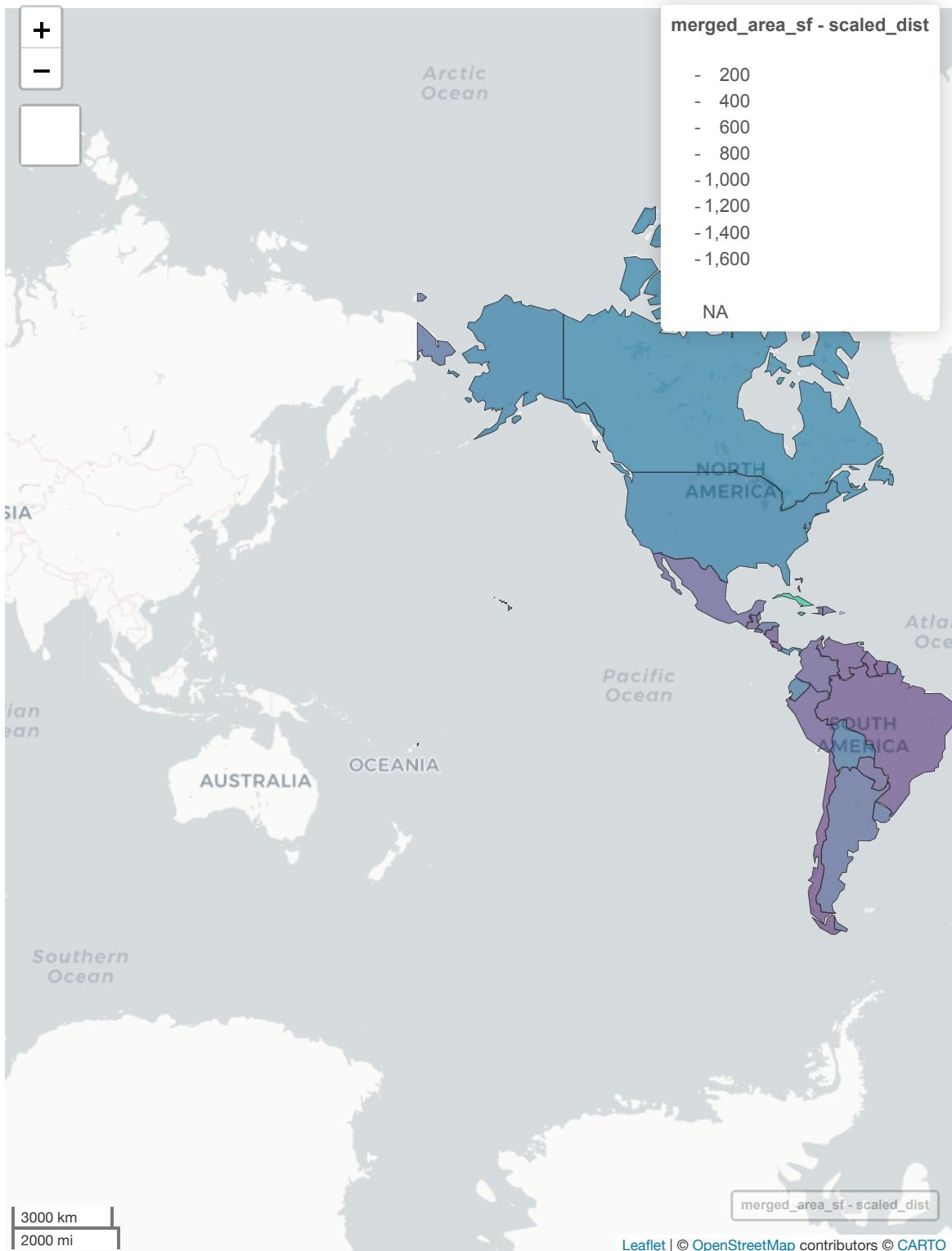


Source: [Article Notebook](#)

We then construct an **area-normalized** measure of capital-centroid distance dist^{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:

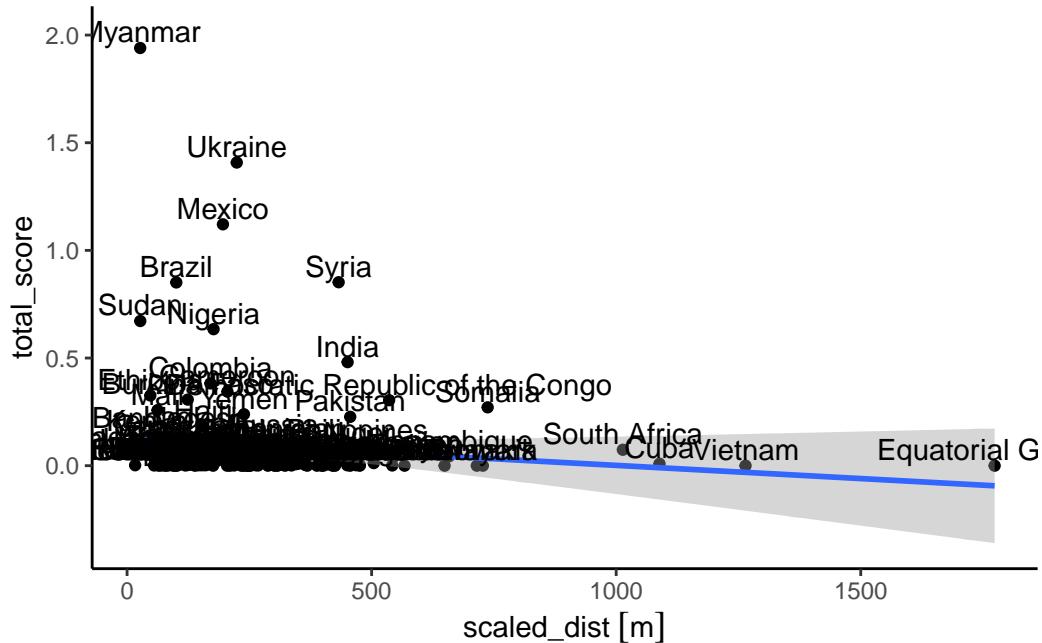


Source: [Article Notebook](#)

Hypothesis Testing (Regression)

geounit	OB- JEC- iso_ ID	NAME_ EN- GLI	OUTNAME	Gdist	area	to- scaled	geome- tal	cen- troid	capital
Tanzania	TZA227	227	Tan-za-nia	0 Dar es Salaam	324758858045.058007	MULTI-POLY-GON	POINT ((33.903715.612844) -0...	POINT (36.5813 -)	POINT (39.2664 -)
Canada	CAN42	42	Canada	0 Ottawa	1410818788705.890201	MULTI-POLY-GON	POINT (- 92.673 122.84 49,...)	POINT (- 75.70196 51.33108) 45.41864)	POINT (- 122.84 49,...)
United States of America	USA244	244	United States	0 Washington, D.C.	1227419147425.820922	MULTI-POLY-GON	POINT (- 91.24719 39.43566) 122.84 49,...)	POINT (- 77.01136 38.9015)	POINT (- 122.84 49,...)
Kazakhstan	KAZ117	117	Kazakhstan	0 Nur-Sultan	2270742699708.200910	MULTI-POLY-GON	POINT ((87.35997 49...)	POINT (69.7252 49.45229) 51.18113)	POINT (71.42777 51.18113)
Uzbekistan	UZB246	246	Uzbekistan	0 Tashkent	1680114106233.098505	MULTI-POLY-GON	POINT (((55.96819 41...)	POINT (67.77264 40.30358) 41.30383)	POINT (69.26882 41.30383)
Papua New Guinea	PNG175	175	Papua New Guinea	0 Port Moresby	2898874528030.770425	MULTI-POLY-GON	POINT (((141.00027.014699) 9.464708 -2...)	POINT (146.2921 -)	POINT (147.1925 -)

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 Niedomysl. 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>.