

**Political and Economic Legacy of Conflict:  
Opportunities and Risks following Situational Threats**

By

**Souleymane Yameogo**

**Dissertation**

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

For the Degree of

**DOCTOR OF PHILOSOPHY**

**IN PUBLIC POLICY**

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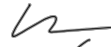
**IN PUBLIC POLICY**

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Approval as of December, 2023



# Abstracts

## Chapter 1:

### **Terrorism, Creativity and Economic Resilience: Natural Experiment from the Boston Marathon bombing.**

The profound impact of terrorism on individual well-being and economic prospects is widely acknowledged. However, the research landscape lacks an exploration of creativity's potential role in mitigating the repercussions of traumatic events despite established connections between social capital, positive emotions, and post-traumatic recovery. This study bridges this gap by employing the Unexpected Event during Survey Design (UESD) method and counterfactual mediation analysis to probe the causal relationship between terrorism, creativity, and income. Drawing from data obtained from the European Social Survey (ESS round 6), focusing on the high-profile event of the Boston Marathon bombing on April 15, 2013, I uncover that terrorism originating in the United States negatively impacts European income while concurrently stimulating creativity. Specifically, creativity causally mediates 5-7 percent of the adverse income impact resulting from the Boston Marathon bombing. This finding underscores the transformative potential of creativity in cultivating resilience among individuals and communities grappling with the aftermath of terrorism.

**Keywords:** Terrorism, Creativity, Economic resilience, Boston Marathon bombing.

**JEL Codes:** D91, D74, I31, 012, Z13

## Chapter 2: Preference for Democracy in Conflict-Affected Africa

Coauthored with Chysostomos Tabakis

Conflicts have a significant impact on political institutions and regime change. Voters' preferences regarding domestic regime types tend to shift, with a greater emphasis on security and a tendency to hold leaders accountable for their failure to provide it. Using Afrobarometer data(Round 7) and ACLED, this study finds that conflict boosts the preference for democracy in Africa. In democracies, although there is no evidence that people support authoritarian institutions following a conflict, in hybrid/authoritarian regimes, voters reject authoritarianism and endorse democracy. Moreover, riots have the strongest effect on people's desire for democracy, mainly in Africa and the sub-sample of authoritarian countries in Africa. Citizens need a lawful environment to voice their discontent with their leaders' actions. In sum, although conflict can threaten democracy, it can also provide an opportunity for democratic change in authoritarian nations.

**Keywords:** Conflict, Political institutions, Democracy.

**JEL Codes:** D74, D72, P16, P48, O17

## Chapter 3:

### **Riots and Trust in the Police: Natural Experiment using Riots in Africa.**

Extensive studies have investigated the relationship between citizens and the police, specifically the impact of police's misconduct on public trust in the police. However, there is a dwarf of studies investigating how exposure to riots affects public trust in the police, and through the lens of the police's role in restoring and maintaining social order and safety. This study shifts the focus from solely analyzing trust-related police misconduct to the broader dynamics of trust-related riots, regardless of their sources. Analyzing data from Afrobarometer and the Armed Conflict Location & Event Data Project and using a spatial difference-in-difference, I investigate the impact of exposure to riots in shaping public trust in the police, and the underlying mechanism. The results show that exposure to riots induce a positive change in public trust in the police, primarily driven by positive perceptions of police behavior and effective task performance. Additionally, trust increases among citizens who perceive their ethnic group as not facing discrimination, and communities with strong social bonds rebuild trust more effectively. These findings emphasize the post-riot period as an opportunity for reforms that address public concerns, enhance police efficiency, and foster greater confidence between the police and communities.

**Keywords:** Police, Riots, Trust, ethnicity, institution

**JEL Codes:** K42, H56, D72, D74, O17

# Dedication

To Mom and Dad.



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I also want to thank my PhD pals Lusekelo, Thimothey and my friend Georgina, as well as the rest of the PhD community. This dissertation wouldn't exist today without their support and encouragement.

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# Chapter 1

## Terrorism, Creativity and Economic Resilience:

Natural Experiment from the Boston Marathon bombing.

## 1.1 Introduction

Recent estimates indicate that terrorism has had a significant impact on the world economy, costing a staggering \$855 billion between 2000 and 2018<sup>1</sup> (Bardwell and Iqbal, 2021). Existing studies established a negative relationship between violent conflicts, terrorism threats, and economic outcomes (Collier and Duponchel, 2013; Jennings and Sanchez-Pages, 2017; Olsson et al., 2020; Manian, 2021; Jeong, 2022; Tapsoba, 2023). However, research conducted on post-traumatic growth or adversarial growth model has shown that traumatic experiences can lead to positive changes in individuals and society (Tedeschi et al., 1998; Linley and Joseph, 2004; Tedeschi et al., 2018; Freedle and Oliveira, 2023). The most challenging of life's obstacles can be transformed into opportunities for personal and societal growth. Adversarial growth is intimately associated with various cognitive appraisal dimensions, including threat, and harm, as well as coping strategies such as problem-solving and positive emotions.

The study of creativity in the aftermath of negative shocks such as terrorist attacks is crucial. While past studies found that social capital (Aldrich, 2012; Freedle and Oliveira, 2023; Klümper and Sürth, 2023), positive emotions, and positive thinking (Linley and Joseph, 2004; Hadida-Naus et al., 2023) play a key role in recovering from traumatic life events, it is surprising that no research has been conducted on the role of creativity in these contexts and how it can potentially mitigate the effects of traumatic events. The focus of this research pertains to investigating the causal relationship between income and terrorism, with a specific emphasis on the mediating role of creativity. Specifically, the research seeks to answer how changes in creativity after a terrorist attack affect an individual's economic outcomes and to what extent this mediates the negative impact of terrorism on income.

To address this inquiry, the study applies a novel combination of methodologies, integrating the Unexpected Event during Survey Design (UESD) approach (Muñoz et al., 2020) with the counterfactual mediation analysis (Valeri and VanderWeele, 2013; VanderWeele and

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<sup>1</sup>In 2018 alone, the cost of terrorism reached \$33 billion, underscoring the severity of the issue (Bardwell and Iqbal, 2021). To illustrate the devastating effects of terrorism, the attacks on September 11, 2001, alone incurred costs of over \$20 billion (Brück and Schindler, 2009).



Vansteelandt, 2014). Specifically, this research leverages the natural experiment offered by the European Social Survey (ESS Round 6, 2012) and a significant real-world event, the Boston Marathon bombing of April 15, 2013, in the United States (Fielding et al., 2014). This empirical setting offers a unique opportunity to investigate how creativity acts as a mediating factor in the relationship between income and external shocks, such as terrorist attacks. Drawing on established theories, which posit that the “vicarious” or indirect exposure to high-profile events can evoke similar effects as direct exposure, the study invokes the shared identity theory (Nivette et al., 2023) and social identity theory (Abrams, 2001) to assert that high-profile incidents in one country may reverberate in another when they share a common identity and face similar victimization risks (Yan et al., 2020). For instance, Nivette et al. (2023) documented how the death of George Floyd in the USA adversely impacted the trust of Black Londoners in the police in the United Kingdom. Likewise, Metcalfe et al. (2011) discerned a negative impact of the September 11, 2001, terrorist attacks in the United States on the mental well-being of individuals in the United Kingdom. The UESD approach provides a robust framework for quasi-experimental analysis through as-if random assignment of respondents to treatment (those surveyed after the bombing) and control groups (those surveyed before the incident).

In this study, I employ self-reported creativity as a measure, acknowledging the ongoing debates regarding its reliability. Previous research (Runco and Jaeger, 2012; Silvia et al., 2012; Zeitlen et al., 2022) has offered both empirical and theoretical support for the reliability of self-reported creativity as an indicator of an individual’s creative abilities. By establishing a connection between the key drivers of creativity (measured in controlled laboratory settings) and self-reported creativity, this study reveals a positive correlation between self-reported creativity and positive emotions, alongside a negative correlation with negative emotions, aligning with prior findings (Isen, 2008; Bledow et al., 2011, 2013). Furthermore, self-reported creativity exhibits a positive association with exploratory behavior (Eide, 2005). These results substantiate the argument that self-reported creativity holds credibility as a

measurement method comparable to laboratory assessments such as the Torrance Test of Creativity. Therefore, self-reported creativity stands as a viable tool for investigating the influence of creativity on a range of economic outcomes.

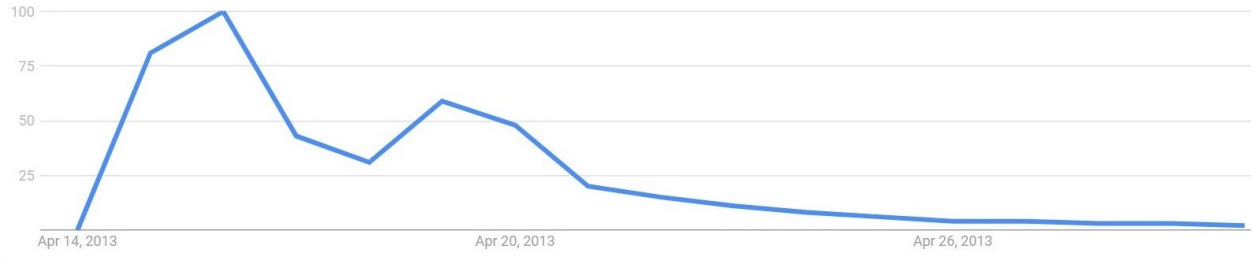
Prior research has shown that creativity has a significant positive effect on various aspects of economic growth (Gören, 2017, 2018) such as innovation, risk preference (Carpenter et al., 2011), entrepreneurial activity, and technological advancement (Doepke and Zilibotti, 2014; Gören, 2017, 2018). This research is particularly relevant in the current global climate where violent events such as terrorism and war are on the rise, and vulnerable populations are most affected (Verwimp et al., 2019). Consequently, understanding how terrorism impacts creativity and how shifts in creativity can help individuals surmount the adverse economic repercussions of traumatic life events is of paramount importance. A deeper comprehension of these dynamics may catalyze the development of innovative solutions to confront these challenges and promote economic resilience.

In this study, I find that terrorism promotes creative thinking, which in turn mediates between 5-7 percent of the negative effect of terrorist attacks on income. This paper presents a novel contribution to the existing literature. First, the study highlights how the vicarious (indirect) experience of terrorism can affect income, while changes in creativity in the terror context help to alleviate this effect. Second, theoretically, the study sheds new light on the resilience-building potential of creativity in the face of terrorism-induced economic challenges. Third, empirically, the study uses a counterfactual approach to mediation analysis along with the UESD to show a mediating causal impact of creativity on the negative impact of the Boston Marathon bombing on Europeans' income. This is the first study to establish a causal link between terrorism, creativity, and income. The findings suggest that policymakers and researchers should also be mindful of high-profile events occurring in other countries with a shared identity, as they can impact domestic outcomes.

### **The April 15, 2013, Boston Marathon bombing.**

Around 25,000 runners from many nations participated in the Boston Marathon on April

Figure 1.1: Google research regarding the Boston Marathon bombing.



Notes: The day of the bombing garnered a significant amount of attention, with interest surging on April 15, 2013, and reaching its peak on April 16. It then returned to normal levels approximately two weeks later, around April 29, 2013.

15, 2013, when two bombs detonated close to the finish line (Fielding et al., 2014). More than 260 people were hurt, and three people died. The incident was the most violent and salient terrorist attack on US soil following the September 11, 2001's terrorist attacks. Media outlets covered this attack extensively, with worldwide Google research (Figure A.1 in Appendix). Figure 1.1 offers a clear overview of the frequency of Google searches regarding the salience of the Boston Marathon bombing. This information provides valuable insight into how the terrorist attacks gained public attention. The figure indicates that the peak interest period occurred on April 16, with a subsequent decline in searches just a few days later. Nine years after the incident, on March 4, 2022, one of the attackers was sentenced to death. Clark et al. (2020) examined the effects of the Boston Marathon bombing on the well-being of US citizens and discovered that though the effect does not last more than a week, people's happiness greatly decreased, and their negative emotions significantly increased.

## 1.2 Conceptual framework and hypotheses

The relationship between terrorism and its impact on creativity remains relatively under-explored. Nevertheless, insights from the crisis decision-making literature (Sweeny, 2008; Ruthven, 2022) and the field of adversarial or post-traumatic growth (Tedeschi et al., 1998; Linley and Joseph, 2004; Tedeschi et al., 2018; Freedle and Oliveira, 2023) shed light on

the potential positive transformations resulting from experiences with terrorism. Linley and Joseph (2004)'s comprehensive review of 39 empirical studies on post-traumatic growth provides valuable insights into the constructive changes that can emerge in the aftermath of traumatic experiences. The post-traumatic growth model states that social networks and support can assist in personal growth following negative life events. Research by Freedle and Oliveira (2023) highlights the importance of social media and community in promoting growth among women who have experienced pregnancy loss. This is consistent with the social capital theory proposed by Aldrich (2012), which emphasizes the crucial role of strong social connections in the process of recovering from a disaster.

In addition, research on decision-making during times of crisis has shown that traumatic experiences, such as acts of terrorism, can stimulate creative thinking and information processing, leading to innovative solutions (Sweeny, 2008; Ruthven, 2022). Further corroborating this, Eddai and Guerdjikova (2023) have also affirmed the connection between optimism and adaptability, emphasizing that optimism fosters flexibility, while pessimism tends to be associated with mitigation strategies.

These findings collectively highlight the potential positive consequences of experiences with terrorism, suggesting that such events can lead to growth and resilience. The key hypotheses tested in the study are the following:

*Hypothesis 1: Vicarious (indirect) experience of terrorism negatively affects income.*

Terrorist activities possess the capability to inflict substantial damage to the world economy, affecting not only the stock market (Chen and Siems, 2004; Apergis and Apergis, 2016; Park and Newaz, 2018; Arfaoui and Naoui, 2022), but also the tourism sector (Drakos and Kutan, 2003; Gaibulloev and Sandler, 2019). Therefore, the Boston Marathon bombing in the United States can negatively affect the income of households in Europe.

*Hypothesis 2: Terrorism can boost creative thinking.*

*Hypothesis 3: Creativity mediates (mitigates) the negative effect of terrorism on income.*

The post-traumatic growth literature provides a perfect setting to understand how life-

altering events such as terrorism could lead to improved problem-solving skills that generate new and innovative ideas, resulting in more successful business ideas, products, services, positions, and other solutions that can positively impact economic outcomes (Carpenter et al., 2011; Florida et al., 2011; Gören, 2017, 2018; Furukawa et al., 2020).

## 1.3 Empirical methodology

### 1.3.1 Data

The study uses the European Social Survey (ESS Round 6, 2012). The survey was carried out between January 31, 2012, and December 16, 2013; I use data collected from August 20, 2012, to December 16, 2013, as it was when most respondents were interviewed. The data set comprised over 10,000 individuals and contained key information regarding the main dependent variable: the household's total net income from all sources. The income variable is derived into ten deciles. The first decile represents the lowest earners, while the tenth decile represents the highest earners. The variable is measured by the question: "Using this card, please tell me which letter describes your household's total income, after tax and compulsory deductions, from all sources? If you don't know the exact figure, please give an estimate. Use the part of the card that you know best: weekly, monthly or annual income." Respondents are classified in a category (decile) based on their weekly, monthly, or annual earnings.

The mediator variable, self-reported creativity, is measured as follows: "Important to think new ideas and being creative. Now, I will briefly describe some people. Please listen to each description and tell me how much each person is or is not like you. Thinking up new ideas and being creative are important to her/him. She/he likes to do things in her/his own original way." The variable is measured by a six-point Likert scale ranging from (1) "very much like me" to (6) "Not like me at all." I reversed the scale for easy interpretation of the findings. A positive coefficient estimate indicates higher creativity, while a negative estimate

suggests lower creativity.

I also consider various socioeconomic factors, comprising age, age squared, marital status, education, citizenship, unemployment status, housework, retired, or student.

The treatment variable captures individuals' exposure to the Boston Marathon bombing on April 15, 2013. The Round 6 survey covers the period of the Boston Marathon bombing, with five countries (Bulgaria, France, Lithuania, Spain, and Sweden) where the bombing happened in the middle of the survey, thus allowing the use of the Unexpected Event During Survey Design (UESD) developed by Muñoz et al. (2020). The Boston Marathon bombing splitting the sample into treatment and control groups: The treatment group represents the respondents surveyed after the bombing and coded 1 ( $t_i \geq t_e$ ), and the control group represents those surveyed before the bombing and coded 0 ( $t_i < t_e$ ), where  $t_i$  is the day of the interview and  $t_e$  the day of the bombing.

Table 1.1 below presents the descriptive statistic. The data indicates that approximately 25 percent of respondents experienced the Boston Marathon bombings, with data available for 192 days before and 131 days after the event. Household net income, on average, falls within the 5th decile, indicating relatively moderate income inequality in the dataset.

Table 1.1: Descriptive statistics.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Household's total net income	8750	5.083	3.037	1	10
Creativity	9947	4.254	1.355	1	6
Days	10056	-28.336	69.243	-192	131
Boston marathon bombing (1/0)	10056	.24821	.4319	0	1
Gender (female)	10073	.547	.498	0	1
Marital status	10011	.49	.5	0	1
Education (years/10)	10021	1.227	.416	0	5.1
Age (years/10)	10070	5.009	1.839	1.5	10.3
Age squared (years/1000)	10070	2.847	1.871	.225	10.609
Citizenship	10073	.97	.17	0	1
Unemployed	10073	.102	.302	0	1
Housework	10073	.234	.424	0	1
Retired	10073	.285	.452	0	1
In a paid job	10073	.48	.5	0	1
Student	10073	.084	.278	0	1

Notes: I kept Bulgaria, France, Lithuania, Spain, and Sweden, where the Boston bombing happened in the middle of the Survey. 24.8% of respondents were surveyed after the Boston Marathon bombing on April 15, 2013.

Furthermore, the data reveals that individuals' self-reported creativity averages around 4.25 on a 6-point Likert scale. The median score is 4, closely aligning with the mean creativity score. The reliability of self-reported creativity measures has sparked debates among researchers, particularly regarding individuals' honesty in reporting lower scores (Silvia et al., 2012). Interestingly, the distribution of creativity scores does not exhibit a pronounced preference for higher levels of creativity. Nearly half of the respondents reported lower levels of creativity. These findings challenge the notion that people inherently value higher levels of creativity, dispelling potential bias toward elevated creativity within the dataset.

In addition, I conduct a test of reliability to assess whether there is a correlation between self-reported creativity and the predictors of laboratory-based measures of creativity, i.e., the Torrance Test of Creativity—in the direction predicted by the theory.

Table 1.2: Reliability of the self-reported creativity.

Variables	(1)	(2)	(3)	(4)	(5)
(1) Creativity	1.000				
	<b>Creative Potential</b>				
(2) Improve skills/Knowledge	0.229*	1.000			
(3) Try New things	0.601*	0.192*	1.000		
(4) Seek adventure	0.466*	0.118*	0.592*	1.000	
(5) Learn new things	-0.358*	-0.235*	-0.316*	-0.239*	1.000
	<b>Negative Emotions</b>				
(6) Feeling Restless	-0.096*	-0.041*	-0.121*	-0.100*	0.104*
(7) Feeling Anxious	-0.155*	-0.052*	-0.134*	-0.099*	0.177*
(8) Feeling Sad	-0.158*	-0.079*	-0.146*	-0.098*	0.162*
(9) Feeling Lonely	-0.140*	-0.074*	-0.166*	-0.128*	0.148*
(10) Feeling Depressed	-0.126*	-0.066*	-0.124*	-0.081*	0.139*
	<b>Positive Emotions</b>				
(11) Feeling Joyful	0.287*	0.148*	0.320*	0.220*	-0.317*
(12) Feeling Happy	0.271*	0.138*	0.297*	0.198*	-0.280*
(13) Feeling Energetic	0.282*	0.163*	0.312*	0.260*	-0.326*
(14) Feeling Enthusiastic	0.222*	0.098*	0.204*	0.125*	-0.209*

Notes: (1) Correlation between self-reported creativity and predictors of laboratory-based creativity. (2) The self-reported creativity is positively associated with exploratory behavior (Eide, 2005). As expected, self-reported creativity and exploratory behavior positively correlate with positive emotions and negatively with negative emotions (Isen, 2008). \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Findings in Table 1.2, column 1 show that self-reported creativity is positively correlated with positive emotions and negatively correlated with negative emotions, consistent with the literature (Isen, 2008; Bledow et al., 2011, 2013). Further, self-reported creativity is positively

correlated with exploratory behavior (Eide, 2005) such as “trying new things,” “seeking adventure,” and “improving skills and knowledge.” The self-reported measure of creativity is correlated with the drivers of the laboratory-based measure in the predicted direction, providing evidence that the self-reported measure of creativity measures the individual’s actual creativity.

## **1.3.2 Method**

The study uses a counterfactual approach to mediation analysis along with the unexpected event during the survey design (UESD) to establish a mediating causal impact of creativity on the negative impact of the Boston Marathon bombing on income in Europe.

### **1.3.2.1 The unexpected event during survey design (UESD).**

The UESD provides a random assignment of individuals around the terrorist event date under some assumptions. This study uses the full sample (-192 and +131 days). Narrowing the bandwidth reduces the number of observations and provides accurate results since individuals are more likely to be homogenous around the cut-off; however, as Muñoz et al. (2020) pointed out, the choice of the appropriate bandwidth depends on different conditions and the researcher’s objective/goals. A narrow bandwidth might limit the generalizability of the results, as the effects will tend to be “very local”. Moreover, the effects of certain events can take some time to unfold, and a narrow bandwidth might miss part of the effect or even “lead to a false negative”. A large bandwidth might suffer from collateral events and simultaneous events that might confound the effect of the event of interest. Thus, choosing either a narrow or large bandwidth has trade-offs. Muñoz et al. (2020) argued that having a large bandwidth might be justified when collateral events are not an issue for the researchers.

In this study, the collateral events are essential for this empirical design since, following terrorism, the individual processes information and decides to engage or not in creative behavior. The existence of collateral events, therefore, does not threaten the validity of

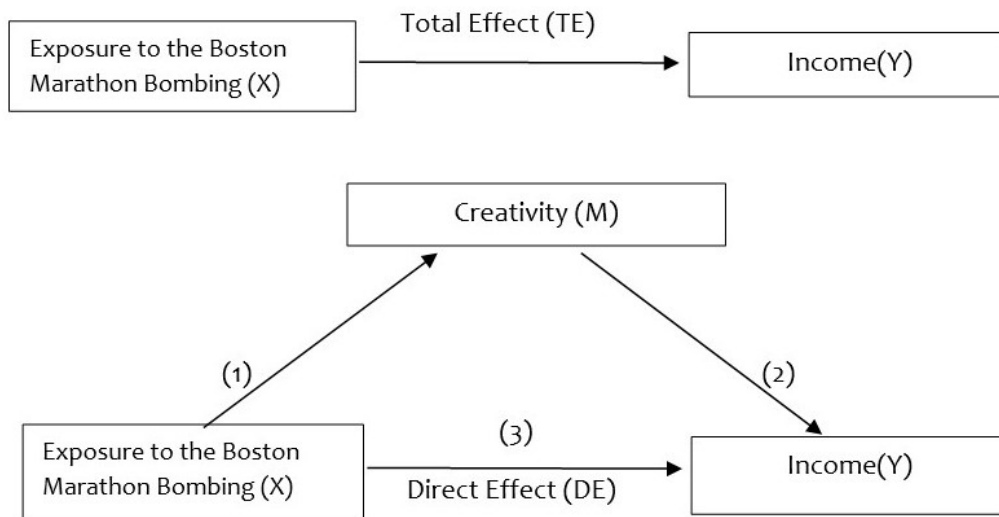


my empirical design (Muñoz et al., 2020). To account for simultaneous events, a review of salient events during the survey time span provides evidence of no salient simultaneous events during the survey design that might confound the effect of the Boston Marathon bombing on Europeans' creativity<sup>2</sup>).

### 1.3.2.2 The Counterfactual approach to mediation analysis

My research utilizes the counterfactual approach to mediation outlined by Valeri and VanderWeele (2013) and VanderWeele and Vansteelandt (2014) to examine the relationship between creativity and income in the context of terrorist attacks. Figure 3 presents the mediation analysis framework.

Figure 1.2: Diagram of the mediation analysis framework.



Notes: (1) Exposure to the Boston bombing increases self-reported creativity. (2) An individual's creativity has a positive impact on income. (3) The direct effect could be zero in the case of full mediation or different from zero in the case of partial mediation. (4) An individual's creativity mediates the relationship between terrorist attacks and income. The indirect effect is the product of the coefficients in (1) and (2).

The traditional method suggested by Baron and Kenny (1986) requires the statistical significance of the coefficients of relationships in (1), (2), (3), and the total effect (TE) for valid mediation analysis (see Figure 1.2). However, Valeri and VanderWeele (2013) has

<sup>2</sup>see <https://www.systemicpeace.org/warlist/warlist.htm>, and [https://en.wikipedia.org/wiki/List\\_of\\_major\\_terrorist\\_incidents](https://en.wikipedia.org/wiki/List_of_major_terrorist_incidents).

claimed that the conditions for a mediation analysis identification are based on the first two relationships. Specifically, changes in exposure should affect the level of creativity (1), and changes in creativity should lead to an improvement in income (2). The total and direct effects do not necessarily need to be statistically significant. This is because if the direct and mediated effects have opposite signs, the total effect may not be significant. Furthermore, if the mediator is entirely responsible for the relationship between the exposure and the outcome, the direct effect will not be significant.

The main method utilized in this study is the counterfactual approach to mediation analysis combined with the UESD. This approach, as suggested by Valeri and VanderWeele (2013), is a highly effective tool that offers greater flexibility to analyze binary, count, and continuous outcomes, as well as binary and continuous mediators. It provides a causal mediation effect under identifiability, subject to four conditions. These include (a) no unmeasured confounders in the relationship (Boston bombing  $\rightarrow$  Income), (b) no unmeasured confounders in the relationship (Creativity  $\rightarrow$  Income), (c) no unmeasured confounders in the relation Boston bombing  $\rightarrow$  Creativity given the controls, and (d) no confounders in the relation creativity  $\rightarrow$  Income affected by the Boston Marathon bombing. While conditions (a) and (c) are satisfied when the treatment is random, controlling for all known confounders remains crucial. Because it is essential to evaluate the random allocation of participants into the treatment and control groups, the UESD plays a pivotal role in providing evidence for identifying the causal mediation analysis.

In this study, I control for an individual's socioeconomic status, such as age (years), age square, education (years), citizenship, gender(female), job (in a paid job), unemployment (unemployed), student, retired, and housework. In addition, I used a region-fixed effect (98 regions) to control for unobserved characteristics that may be region-specific.

The four-way decomposition of the total effect proposed by Valeri and VanderWeele (2013) and VanderWeele and Vansteelandt (2014) is as follows:

The controlled direct effect (CDE) measures the average outcome (Income) change when

the mediator (creativity) is uniformly controlled at level  $c$  in the population, where  $post$  and  $pre$  represent the post-bombing and pre-bombing context:

$$CDE(c) = E[Income(post, c) - Income(pre, c)] \quad (1.1)$$

The natural direct effect (NDE) estimates the outcome change following the Boston Marathon bombing while keeping creativity at its pre-bombing level.

$$NDE = E[Income(post, creativity(pre)) - Income(pre, creativity(pre))] \quad (1.2)$$

The natural indirect effect (NIE) measures the average income change following the Boston Marathon bombing due to a change in creativity.

$$NIE = E[Income(post, creativity(post)) - Income(post, creativity(pre))] \quad (1.3)$$

Lastly, the total effect (TE) is equal to the sum of the natural direct effect and the natural indirect effect.

$$TE = NDE + NIE \quad (1.4)$$

The proportion mediated by creativity is computed using the following formula:

$$PM = \left( \frac{NIE}{NIE + NDE} \right) = \left( \frac{NIE}{TE} \right)$$

Similarly, the output decomposition, with  $X_k$  the controls and known confounders, and

allowing for interaction, gives the following:

$$E[Income|post, creativity, X_k] = \theta_0 + \theta_1 post + \theta_2 creativity + \theta_3 post \times creativity + \theta'_4 X_k \quad (1.5)$$

$\theta_1$  measures the direct effect of the Boston Marathon bombing on income.  $\theta_2$  measures the impact of creativity on Income, and  $\theta_3$  is the interaction between creativity and exposure to the Boston Marathon bombing.  $\theta'_4$  measures the coefficients of covariates and confounders.

$$E[creativity|post, X_k] = \beta_0 + \beta_1 post + \beta'_2 X_k. \quad (1.6)$$

$\beta_1$  captures the impact of the Boston Marathon bombing on creativity.  $\beta'_2$  measures the coefficients of covariates/confounders.

From the regressions in (5) and (6), it is possible to obtain the direct and indirect effects:

$$CDE = (\theta_1 + \theta_3 creativity)(post - pre) \quad (1.7)$$

$$NDE = \{\theta_1 + \theta_3(\beta_0 + \beta_1 pre + \beta'_2 creativity)\}(post - pre) \quad (1.8)$$

$$NIE = (\theta_2 \beta_1 + \theta_3 \beta_1 post)(post - pre) \quad (1.9)$$

In case there is no interaction between the Boston Marathon bombing and creativity,  $\theta_3=0$ , and the controlled direct effect (CDE) equals the natural direct effect (NDE).

## 1.4 Results and discussion

### 1.4.1 Results

Prior to presenting the main findings, I present a balance test to evaluate the ignorability assumption. The ignorability assumption is fulfilled if the chance of being assigned to the control or treatment group can be assumed to be effectively random (Nägel and Lutter, 2023). Table 1.3 presents the balance test for the ignorability assumption with the treatment status as the dependent variable and regressed on all other predictors. The results show no imbalance between the control and treatment groups on most control variables, except for marital and unemployment status and paid jobs. Therefore, I use all the control variables to account for the imbalance in the assignment to the treatment and control group and to improve the precision of the estimates.

Table 1.3: Binary regression with treatment as the dependent variable (balance test).

Variables	(1) Treatment group	Variables	(1~Ctd) Treatment group
Gender (Female)	-0.0019 (0.0034)	Unemployed	-0.0230*** (0.0082)
Marital status	-0.0113*** (0.0040)	Housework	-0.0057 (0.0045)
Education (years/10)	0.0014 (0.0076)	Retired	-0.0166 (0.0117)
Age (years/10)	0.0006 (0.0064)	In a paid job	-0.0113* (0.0067)
Age squared (years/1000)	-0.0035 (0.0071)	Student	-0.0071 (0.0123)
Citizenship	0.0029 (0.0193)	-	-
Region dummies	Yes	Region dummies	Yes
Observations	9941	Observations	9941
R <sup>2</sup>	0.816	R <sup>2</sup>	0.816

Notes: (1) The dependent variable is the treatment variable. (2) The ignorability assumption is fulfilled if the chance of being assigned to the control or treatment group can be assumed to be effectively random.

The significance level: \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Next, I utilize the Baron and Kenny (1986)'s mediation and the counterfactual approach to mediation analysis (Valeri and VanderWeele, 2013; VanderWeele and Vansteelandt, 2014). To begin with, I conduct separate regressions using the Baron and Kenny (1986)'s method. I use an ordinary least squares (OLS) regression with a continuous dependent variable coding (Freedman, 2008; Deke, 2014).

Table 1.4: Results using the classical mediation analysis.

	(1) Income (Decile)	(2) Creativity	(3) Income (Decile)	(4) Income (Decile)
Boston marathon bombing	-0.0775** (0.0383)	0.1256* (0.0705)		-0.0813** (0.0398)
Creativity			0.0335*** (0.0052)	0.0335*** (0.0053)
Controls	Yes	Yes	Yes	Yes
Region-Fixed Effect	Yes	Yes	Yes	Yes
Observations	8650	9818	8569	8555
R <sup>2</sup>	0.424	0.138	0.418	0.418

Bootstrap Standard errors in parentheses|| \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Notes: (1) I use the logarithm of the dependent variable and a bootstrap standard error. (2) I control for age (years), age squared, education (years), citizenship, gender(female), job (in a paid job), unemployment (unemployed), student, retired, and housework. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Table 1.4 shows that the Boston Marathon bombing, which took place on April 15, 2013, had a significant adverse effect on income in Europe (Boston Marathon bombing  $\rightarrow$  Income). Based on the significant relationships between the Boston Marathon bombing  $\rightarrow$  Creativity and Creativity  $\rightarrow$  Income, we can confidently conclude that creativity serves as a mediator (Boston Marathon bombing  $\rightarrow$  Creativity  $\rightarrow$  Income), as illustrated in column 4.

The Boston Marathon bombing in April 2013 had a direct negative impact on income, resulting in a decrease of 8.13% (column 4) and a negative total effect of 7.75% (column 1). Conversely, it increased people's creativity by 12.56% (column 2). Column 3 shows that creativity improves income by 3.35%. The indirect effect of terrorism on income could be computed as follows:  $.1256 \times .0335$ , which is  $.0042$  (.42%). Therefore, it can be concluded

that people's creativity plays a role in reducing the impact of terrorism on income, with a proportion mediated of 5.42% (.0042/.0775). Following the Baron and Kenny (1986)'s approach, one can conclude that creativity mediates 5.42% of the relationship between the Boston Marathon bombing and income.

The following section presents the counterfactual approach to mediation (Valeri and VanderWeele, 2013; VanderWeele and Vansteelandt, 2014). The study's findings are summarized in Table 1.5 for the outcome without exposure-mediator interaction, while Table 1.6 presents the findings with interaction. Table 1.5 presents the regression coefficient from the outcome regression (Panel A) and the decomposition of the total effect (Panel B). The Boston Marathon bombing has a direct effect of an 8.1% decrease in European income while increasing their creativity by 3.3% (Panel A).

The controlled direct effect (CDE) measures the impact of terrorism on income while keeping creativity constant (or uniform across all individuals). In Panel B, the controlled direct effect of the Boston Marathon bombing resulted in a significant decrease of 8.1% in the income of Europeans. The natural indirect effect (NIE) revealed that the changes in creativity resulting from the Boston Marathon bombing on April 15, 2013, had a statistically significant positive impact on income. In the terror context, the Europeans' creativity improves their income because the terror event creates a perfect setting for creative thinking, bringing up innovative ideas and coping methods, inducing a .42% increase in income. Since the total effect (TE) of terrorist attacks on income is a decrease of 7.7%, the proportion mediated by creativity stands at 5.42% (.0042/.077) of the relationship between terrorism and income. These results are similar to those in Table 1.4. Valeri and VanderWeele (2013) shows that without interaction, the controlled direct effect, the natural direct effect, and the natural indirect effect obtained with the counterfactual approach to mediation are equal to the classical Baron and Kenny (1986)'s mediation analysis.

Table 1.6 presents the results with exposure-mediator interaction. Valeri and VanderWeele (2013) and VanderWeele and Vansteelandt (2014) argue that when there is reason to

Table 1.5: Counterfactual approach to mediation ignoring the exposure-mediator interaction.

Output for Outcome Regression Ignoring Exposure-Mediator Interaction		
Panel A. Output regression	Estimates (se)	P-value
Dependent variable: Income (Decile)		
Boston marathon bombing	-.081 (.036)	0.024
Creativity	.033 (.019)	0.000
Dependent variable: Creativity		
Boston marathon bombing	.125 (.068)	0.067
Note: Boston Bombing=Exposure; Creativity=mediator, income=outcome		
Panel B. Effect decomposition	Estimates (se)	P-value
Controlled Direct Effect (CDE)	-.081 (.038)	0.024
Natural Indirect Effect (NIE)	.0042 (.002)	0.077
Total Effect (TE)	-.077 (.038)	0.033
Ratio Indirect Effect /Total Effect	5.26%	

Notes: (1) I control for age (years), age squared, education (years), citizenship, gender(female), job (in a paid job), unemployment (unemployed), student, retired, and housework. (2) Panel A displays the results of the outcome regression, while Panel B shows the effect decomposition. (3) I used the bootstrap standard error.

believe that the treatment can be a moderator for the mediator, the effect of the mediator is allowed to vary by treatment status, or the effect of the treatment is allowed to vary with the mediator. Since the mediator and the treatment are the same as in Tables 1.5 and 1.6, I only report the results from the outcome (income) regression and the decomposition of the total effect. Panel A. of Table 1.6 shows that the Boston Marathon bombing decreased income by 12.5%, while the interaction between creativity and the Boston Marathon bombing increased income by .9%, although the coefficient is not statistically significant. Though the impact of creativity in the model with interaction (.031) is not too far from the one without inter-



Table 1.6: Counterfactual approach to mediation with the exposure-mediator interaction.

Output for Outcome Regression Allowing for Exposure-Mediator Interaction		
Panel A. Output regression	Estimates (se)	P-value
Boston Marathon bombing	-.125 (.063)	0.047
Creativity	.031 (.006)	0.000
Boston Marathon bombing X Creativity	.009 (.011)	0.392
Note: Boston bombing=Exposure; Creativity=mediator, income=outcome, Boston X Creativity= Interaction Exposure-Mediator		
Panel B. Effect decomposition	Estimates (se)	P-value
Controlled Direct Effect (CDE)	-.116 (.053)	0.033
Natural Direct Effect (NDE)	-.085 (.039)	0.019
Natural Indirect Effect (NIE)	.005 (.018)	0.094
Total Effect (TE)	-.079 (.151)	0.028
Ratio Indirect Effect /Total Effect	6.33%	

Notes: (1) I control for age (years), age squared, education (years), citizenship, gender(female), job (in a paid job), unemployment (unemployed), student, retired, and housework, and region dummies. (2) The upper part of the table displays the results of the outcome regression, while the lower part shows the effect decomposition. (3) I used the bootstrap standard error.

action (.033), the impact of the Boston bombing displays a significant difference. Valeri and VanderWeele (2013) argue that using the model with interaction provides unbiased results in the presence of interaction.

Panel B of Table 1.6 presents the 4-ways decomposition of the total effect, also called the average causal mediation analysis conditional to treatment status (Tingley et al., 2014). The controlled direct effect (CDE) is equal to -.116. When creativity is held constant or assuming everyone has the same level of creativity, exposure to the Boston Marathon bombing harms income by an 11.6% decrease. This effect is stronger than without interaction. The natural

direct effect (NDE) captures the change in mean income between individuals exposed and those not exposed to the Boston Marathon bombing, given that their creativity is set at the pre-bombing level. The exposure to the Boston bombing has a negative direct effect of an 8.5% decrease in income. The natural indirect effect (NIE) shows that the change in creativity due to the Boston Marathon bombing, conditional to the treatment status, has a .5% increase in income. This result is slightly higher than the effect without interaction (.42%). The natural indirect effect is also called the average causal mediation effect (ACME) conditional to treatment status (Tingley et al., 2014). The total effect (TE) decreased by 7.9% of income. The proportion mediated by creativity is then % (0.005/0.079). Therefore, creativity mediates 6.33% of the relationship between the Boston Marathon bombing and European income.

This study provides empirical evidence that creativity is pivotal in how individuals handle negative life events, with far-reaching implications for their well-being. By applying analytical techniques such as classical mediation analysis by Baron and Kenny (1986) and the counterfactual approach, with or without interaction between exposure-mediator (Valeri and VanderWeele, 2013; VanderWeele and Vansteelandt, 2014), the study provides compelling evidence of the mediating effect of creativity on the relationship between the Boston Marathon bombing and the income of Europeans. The results conclusively show a range of 5.42% (classical mediation), 5.42% (counterfactual mediation without interaction), and 6.33% (counterfactual mediation with interaction), emphasizing the critical role of creativity in mitigating traumatic life's challenges irrespective of the chosen model.

### **1.4.2 Robustness using an alternative measure of creativity**

Next, I use the variable “Try new things”, which has the highest correlation coefficient (.601) for the robustness of my findings. The variable “trying new things.” captures the creative potential of the individuals (Zeitlen et al., 2022). The intuition is that creative individuals are more likely to take risks and try new things. The findings are consistent with the findings

using self-reported creativity.

Table 1.7: Counterfactual approach to mediation ignoring the exposure-mediator interaction.

Output for Outcome Regression Ignoring Exposure-Mediator Interaction		
Panel A. Output regression	Estimates (se)	P-value
Dependent variable: Income (Decile)		
Boston marathon bombing	-.084 (.036)	0.020
Try new things in Life	.023 (.004)	0.000
Dependent variable: Try new things in Life		
Boston marathon bombing	.226 (.072)	0.002
Note: Boston Bombing=Exposure; Try new things in Life =mediator, income=outcome		
Panel B. Effect decomposition	Estimates (se)	P-value
Controlled Direct Effect(cde)	-.084 (.0387)	0.020
Natural Indirect Effect (nie)	.005 (.002)	0.008
Total Effect (te)	-.0787 (.038)	0.029
Ratio Indirect Effect /Total Effect	6.35%	

Notes: (1) I control for Age (years), Age square, Education (years), Citizenship, gender(Female), Job (In a paid job), unemployment (Unemployed), Student, Retired, and Housework, including region dummies. (2) Panel A displays the results of the outcome regression, while Panel B shows the effect decomposition.

The findings in Table 1.7 show a proportion mediated of 6.35% (Counterfactual mediation without interaction) and 10.07% (Table 1.8: Counterfactual mediation with interaction). Therefore, promoting novelty-seeking behavior (creativity or willingness to try new things) improves people’s resilience in the aftermath of terror events.

In sum, incorporating the development of creative thinking into policies aimed at alleviating the adverse consequences of conflicts or traumatic events is not just an option; it is an absolute necessity. Although the proportion mediated by creativity may not be large, it has a compelling rationale that cannot be ignored. Failure to enhance the mitigating effect

Table 1.8: Counterfactual approach to mediation with the exposure-mediator interaction.

Output for Outcome Regression Allowing for Exposure-Mediator Interaction		
Panel A. Output regression	Estimates	P-value
Boston Marathon bombing	-.1597 (.059)	0.007
Try new things in Life	.0196 (.021)	0.000
Boston Marathon bombing X Try new things in Life	.01778 (.0111)	0.11
Note: Boston marathon bombing=Exposure; Try new things in Life =mediator, income=outcome, Boston marathon bombing X Creativity= Interaction exposure-mediator		
Panel B. Effect decomposition	Estimates	P-value
Controlled Direct Effect (CDE)	-.1419 (.049)	0.006
Natural Direct Effect (NDE)	-.0919 (.039)	0.012
Natural Indirect Effect (NIE)	.0084 (.003)	0.016
Total Effect (TE)	-.0834 (.038)	0.021
Ratio Indirect Effect /Total Effect	10.07%	

Notes: (1) I control for Age (years), Age square, Education (years), Citizenship, gender(Female), Job (In a paid job), unemployment (Unemployed), Student, Retired, and Housework, including region dummies. (2) The upper part of the table displays the results of the outcome regression, while the lower part shows the effect decomposition.

of creative thinking could lead to irreversible negative impacts of trauma. Therefore, taking action and prioritizing incorporating creative thinking into policies is imperative.

Finally, in Table 1.9, I check for the temporal stability assumption. This assumption suggests that without the treatment, there is no effect on the outcome (e.g., no pre-bombing effect on income and creativity). In case there is a reason to believe that individuals could anticipate the occurrence of the bombing or whether potential confounding events could drive the change in outcome at the date of the bombing, some studies used dates before the bombing for placebo/falsification test (Muñoz et al., 2020).

In this study, I investigate whether, days or fortnights (15 days) before the Boston bomb-

Table 1.9: Placebo test for temporal stability assumption.

	Fortnights before the event		Days before the event	
	(1) Household's total net income	(2) Creativity	(1) Household's total net income	(2) Creativity
Two	-0.1486 (0.1083)	0.0093 (0.0557)	-0.7197 (0.6385)	0.2550 (0.2613)
Three	-0.0989 (0.1011)	0.0189 (0.0532)	-0.6463 (0.5083)	-0.0847 (0.3003)
Four	-0.0293 (0.0975)	0.0264 (0.0478)	0.5945 (0.6497)	0.2309 (0.2884)
Five	0.1439 (0.1239)	0.0257 (0.0562)	-0.0317 (0.6338)	0.0529 (0.2824)
Controls	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes
Observations	8664	9835	8664	9835
R <sup>2</sup>	0.424	0.138	0.424	0.138

Notes: (1) The time variable represents a relative time with respect to the day or fortnights of the Boston Marathon bombing. I control for age (years), age squared, education (years), citizenship, gender(female), job (in a paid job), unemployment (unemployed), student, retired, and housework. The significance level:  $*p < 0.1$ ,  $**p < 0.05$ ,  $***p < 0.01$ .

ing, there was a change in income and self-reported creativity. Table 1.9 shows no evidence of potential anticipation or change in income and creativity before the bombing day. There is empirical evidence of a parallel pre-trend, providing a strong reason to believe that the Boston bombing drives the change in income and creativity.

### 1.4.3 Discussion

This research substantiates the pivotal role of creativity in mitigating the adverse repercussions of terrorism on income, carrying profound implications for policy formulation. Foremost, this study leverages the Boston Marathon bombing as a lens to scrutinize shifts in behavior and outcomes within Europe, thereby providing an empirical context that converges with prior research addressing the influence of indirect exposure to shocks on individual outcomes (Metcalf et al., 2011; Finseraas and Listhaug, 2013). Anchored in the shared identity theory (Nivette et al., 2023) and the social identity theory (Abrams, 2001), the research

posits that individuals united by a common identity, irrespective of their geographical location, tend to resonate with events impacting their peers. For instance, the self-identification of black Londoners with black Americans engenders analogous attitudes towards local police following incidents like the demise of George Floyd (Nivette et al., 2023). Similarly, Metcalfe et al. (2011) demonstrated that the September 11 attacks engendered detrimental effects on the mental well-being of individuals in the United Kingdom.

Furthermore, the victimization risk paradigm underscores that perceiving oneself at risk fosters identification with those confronting a shared adversary. Yan et al. (2020) contends that individuals identifying as victims tend to react to shocks akin to those who have experienced direct victimization. Consequently, nations or individuals envisioning themselves as potential targets might react as if attacked, evincing behaviors analogous to actual victims. Given that the Western model has confronted challenges from Islamist and anti-Western movements since the September 11, 2001 attacks, it is plausible to anticipate that a terrorist incident in a Western nation resonates with counterparts sharing a common identity, particularly in Europe.

Subsequently, an imperative challenge in this study revolves around the precise measurement of creativity. While the critique of bias in self-reported measures is conceivable, a comprehensive evaluation of the measure's robustness is undertaken through correlation analysis and extensive field research. The correlation between self-reported creativity and indicators of laboratory-based creativity measures unveils a positive correlation with positive emotions and a negative correlation with negative emotions (Isen, 2008; Bledow et al., 2011, 2013). Additionally, the incorporation of exploratory behavior as a measure, specifically "Trying new things" yields consistent and reliable outcomes (Eide, 2005). Collectively, these outcomes underscore the robustness and reliability of the self-reported creativity measure.

Moreover, this study uncovers the detrimental effect of the Boston Marathon bombing on income in Europe. The aftermath of terrorist incidents can wield substantial financial and psychological implications, irrespective of direct or indirect exposure. Consequently, policy-

makers and researchers are urged to be attuned to prominent events transpiring in countries sharing a common identity, as they bear the potential to reverberate across domestic outcomes. Notably, terrorist events within the United States can exert far-reaching impacts, extending beyond national boundaries to affect the income in Europe. This susceptibility arises from the capacity of such events to impose adverse consequences on the global economy and tourism sector. A range of studies underscores the capacity of terrorist activities to inflict harm on the world economy, impacting not only stock markets (Chen and Siems, 2004; Apergis and Apergis, 2016; Park and Newaz, 2018; Arfaoui and Naoui, 2022) but also the tourism sector (Drakos and Kutan, 2003; Gaibulloev and Sandler, 2019; Bardwell and Iqbal, 2021).

The experience of terrorism also engenders profound repercussions on an individual's mental well-being, engendering trauma, stress, and anxiety (Metcalf et al., 2011; Clark et al., 2020). These emotional states can culminate in negative sentiments impeding productivity, inducing risk aversion (Kliger and Levy, 2003; Gelman and Kliger, 2021), and precipitating income diminishment. Nonetheless, the cognitive appraisal theory of creativity (Mitchell and Phillips, 2007; Isen, 2008) and the post-traumatic growth literature (Tedeschi et al., 1998; Linley and Joseph, 2004; Tedeschi et al., 2018; Freedle and Oliveira, 2023) posit that traumatic incidents can precipitate enhanced problem-solving abilities and stimulate creativity, fostering potential enhancements in personal well-being. Extant research underscores the substantial positive influence of creativity on economic growth facets encompassing impatience, risk preferences, innovation, entrepreneurial activity, and technological advancement (Carpenter et al., 2011; Florida et al., 2011; Gören, 2017, 2018; Furukawa et al., 2020).

The impact of a traumatic event varies among individuals, contingent upon stress tolerance and information processing ability. Traumatic incidents can trigger creativity and a preference for seeking novelty (Sweeny, 2008; Ruthven, 2022).

Emotions exert a pronounced influence on decision-making processes (Kaufmann, 2003; Isen, 2008; Fehr-Duda et al., 2011; Schulze et al., 2013; Mourelatos, 2023). Negative emotions

can facilitate convergent thinking, a pivotal facet of creative problem-solving (Kaufmann, 2015). Conversely, positive emotions foster divergent thinking, enabling connections among disparate information fragments and facilitating the generation of a more extensive spectrum of solutions (Isen, 2008; Bledow et al., 2011, 2013). While Isen (2008) argued that negative emotions hinder creative thinking, Bledow et al. (2011, 2013) highlighted that convergent and divergent thinking are crucial for developing innovative solutions to navigate traumatic incidents. Individuals engage in creative activities when they experience positive emotions.

Though these studies posit the significance of the initial emotional surge in confronting adverse events, some studies also contend that traumatic incidents can elicit both negative emotions, such as fear and anger, and positive emotions, such as optimism and enthusiasm (Mills and D’Mello, 2014; Yan et al., 2020). Within this study, a demarcation is not established between the initial emotional surge and induced emotions that could influence creative thinking. Consequently, an imperative avenue entails dissecting whether an individual’s initial positive emotions or the induced positive emotions engender the most potent creative thinking within the terrorism context.

This research underscored the pivotal role of creativity in ameliorating the emotional aftermath of traumatic events. Furthermore, creative thinking propels innovation and stimulates economic advancement, heralding employment prospects and prosperity. By fostering innovative solutions, societal challenges can be effectively confronted, driving progress and prosperity.

## **1.5 Conclusion**

This study underscores the pivotal role of creativity in causally mediating the intricate relationship between terrorism and income. In an era marked by an escalating prevalence of violent conflicts, notably terrorist acts, unraveling the mechanisms of resilience in the wake of traumatic incidents becomes paramount. It is evident from this research that creativity serves



as a keystone in equipping individuals to surmount the traumatic aftermath of events like the Boston Marathon bombing in 2013. Individuals endowed with creative thinking prowess exhibit heightened adaptability, arming them with innovative solutions to counteract the detrimental repercussions of such shocks.

The contributions of this paper resonate across the existing literature concerning the economic ramifications of terrorism and the salient role of creativity in fortifying resilience. Primarily, this study forges a causal mediation nexus between creativity, terrorism, and income, providing a unique lens through which resilience-building within the context of terrorism can be scrutinized at an individual level.

Secondly, this research casts a fresh light on the resilience-building potential inherent in creativity amid the crucible of economic challenges wrought by terrorism. By elucidating the intricate mechanism through which creativity attenuates the pernicious influence of terrorism on income, this study augments our comprehension of the role of creativity in devising solutions and adaptive strategies in the wake of terrorist incidents.

Lastly, this study underscores the urgency of infusing creative thinking into policies and actions designed to mitigate the negative impact of terrorism on income. It is an important call for policymakers to heed the salient role of creativity in the realm of resilience-building and post-crisis problem-solving. This cognizance can potentially pave the way for the development of flexible economic systems capable of swift adaptation to substantial changes. Concrete steps include (i) investments in arts education, design thinking, and innovation workshops to foster creativity and equip individuals with essential skills; (ii) incentivizing entrepreneurship and innovation through measures such as tax incentives and research and development funding to bolster economic dynamism; and (iii) fortifying social safety nets with initiatives like unemployment insurance and targeted financial aid to bolster economic resilience and stability.

This comprehension of the pivotal role of creativity assumes even greater significance in developing countries, where individuals grapple with more arduous circumstances. The

capacity to harness creativity as a coping mechanism may hinge upon the prevailing institutional framework and the nurturing creative environment, which can either facilitate or hinder creative thinking. One way to address this constraint is to broaden our investigation to encompass developing countries' contexts.

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## Chapter 2

# Preference for Democracy in Conflict-Affected Africa.

Coauthored with Chrysostomos Tabakis

## 2.1 Introduction

The erosion of democracy is a growing global concern. This arises from ongoing democratic backsliding and a surge in non-democratic ideologies. Presently, over a third of the world’s population resides under authoritarian regimes (Democracy Index, 2021). A comprehensive understanding of post-conflict political dynamics and the underlying mechanisms influencing regime preference is crucial. This knowledge is pivotal in formulating effective policies that promote democracy and peace-building. Previous research has emphasized the detrimental impact of conflict on democracy. It is observed that citizens often endorse authoritarian leaders and policies in turbulent times.

While most studies concentrate on inter-group conflict (Merolla and Zechmeister, 2009; Laustsen et al., 2015; Laustsen and Petersen, 2017; Vasilopoulos et al., 2018, 2019; Petersen and Laustsen, 2020; Hale, 2022), extant literature provides evidence of a preference for authoritarian regimes during situational threats. These threats encompass intra-group conflict (Bøggild and Laustsen, 2016), economic uncertainty (Kakkar and Sivanathan, 2017), and global pandemics such as Covid-19 (Vasilopoulos et al., 2022). This phenomenon is attributed to citizens in democratic societies temporarily relinquishing civil liberties and supporting authoritarian regimes. This stems from the belief that strongman leaders are better equipped to manage crises (Merolla and Zechmeister, 2013; Laustsen, 2021).

In contrast to the prevailing consensus associating conflict with increased support for authoritarian rule, we propose a more nuanced perspective. We argue that an individual’s prior governance experience significantly influences their post-conflict regime preferences. Our primary objective is to ascertain which voters, residing under either democratic or authoritarian regimes, endorse authoritarian or democratic governance when faced with threatening circumstances. A substantial gap exists in the current literature regarding a comparative analysis of post-conflict preferences within both democratic and authoritarian contexts. This study aims to extend previous studies by adopting a unique standpoint. Our theoretical framework is grounded in the concept of voters as Bayesian updaters (Jackman,

2004; Lopes and Tobias, 2011). Conflict situations, especially ongoing conflicts, act as signals of a leadership or prevailing regime’s inability to ensure safety and security. This critical information prompts voters to reassess their prior beliefs concerning the current regime and explore alternative leadership or regime options. This reevaluation may arise from the belief that an alternative leadership or regime possesses the capability to effectively address the security issue or from a desire to hold the current regime accountable for its perceived failures, aligning with the principles of the principal-agent theory (Downs and Roche, 1994; Miller, 2005).

This study combines the Afrobarometer data (Round 7; Afrobarometer Data, 2020) and the Armed Conflict Location & Event Data Project (ACLED) to examine the impact of exposure to conflict on voters’ support for authoritarian regimes. We focus on individuals surveyed post-conflict, residing within 50 kilometers of conflict-affected areas across diverse African countries between 2017 and 2018. Africa, marked by a prolonged history of conflict and institutionally-driven economic challenges (Acemoglu and Robinson, 2012), provides a distinctive backdrop for our research. Millennia of intricate conflicts, from the transatlantic slave trade to post-colonial power struggles, have scarred the continent (Verwimp, 2003; Collier and Duponchel, 2013).

Our research reveals that individuals’ regime preferences can undergo substantial shifts during conflicts, highlighting the impact of unexpected threats on decision-making (Bonnano and Jost, 2006; Jost et al., 2009; Schüller, 2015; Jiménez et al., 2021). Citizens in authoritarian regimes tend to adhere to democratic governance after conflicts, while those in democracies express support for authoritarian rule. This pattern suggests that conflict per se doesn’t inherently drive authoritarian support; rather, individuals’ experiences within their current governance system influence their post-conflict aspirations. We further demonstrate that negative perceptions of executive competence and leadership in conflict management drive this shift.

The implications of our findings are twofold. Firstly, conflicts’ detrimental impact on

citizens' government support can jeopardize political stability and institutional quality. Ensuring stability requires delivering public goods aligned with citizens' prior preferences (e.g., peace and security) while pursuing broader objectives like effective economic management. Secondly, conflict poses a threat to democracy, necessitating cautious foreign policies in developing countries, especially in addressing leaders' responses to conflict. Ineffectual conflict and crisis management may heighten authoritarian demands, as observed in Mali and Burkina Faso, where the China-Russia governance model gained traction due to ineffective Western policies.

The subsequent sections expound upon our principal-agent problem framework, detail our empirical strategy, present findings regarding conflict's impact on democratic preference and its sub-samples, explore the role of conflict event types on regime support, and unveil the underlying mechanism of regime preference. The study concludes with a comprehensive discussion and conclusion.

## **2.2 Conceptual framework and hypotheses**

Drawing on prior research, our study constructs a comprehensive framework to investigate how individuals respond to situational threats and subsequently adjust their preferences and behaviors, akin to Bayesian updaters (Jackman, 2004; Lopes and Tobias, 2011). In this study, we contend that voters, when exposed to conflict, adjust their behaviors. This adjustment may either diminish their support for the existing regime, thereby weakening partisan loyalty, or enhance their backing for the prevailing regime.

Previous research on voters' preference changes during conflicts (Laustsen and Petersen, 2017; Laustsen, 2021) demonstrate a pattern of behavior adaptation. The adaptive followership theory proposed by Laustsen (2021) illustrates that in conflict situations, left-wing or liberal voters tend to shift towards supporting more authoritarian policies, while right-wing voters or those with high social dominance orientation tend to strengthen their support for

authoritarian policies.

The conflict-induced shift weakens partisan loyalty among left-wing voters and reinforces right-wing support for authoritarian leadership in a democratic setting. The democratic backsliding observed results from left-wing voters aligning with right-wing voters in their preference for dominant leadership. This alignment weakens democratic leadership and creates space for increased support for authoritarian rule or leadership.

Furthermore, the Affective Intelligence Theory (AIT) developed by Marcus et al. (2019) demonstrates that, in situations of threat, individuals' emotions play a crucial role in determining their preference for dominant leadership. According to the theory, in a democratic context, individuals with flight-related emotions (such as anxiety or fear) are more inclined to shift their preference towards more authoritarian policies compared to those with fight-related emotions (like anger). Emotions significantly influence how individuals perceive and evaluate risks—those experiencing fear tend to overestimate risk probabilities, while individuals expressing anger or enthusiasm tend to underestimate risks. This emotional processing, in turn, shapes their policy preferences in the context of conflict (Yan et al., 2020).

Individuals exposed to conflict or traumatic events process information based on their emotional dispositions and adjust their prior beliefs accordingly. While this paper does not specifically investigate the impact of individual dispositions on preferences for authoritarian or democratic rule, our theoretical framework aligns with the notion of an updating behavior that leads to a shift in behavior against the prevailing regime when confronted with conflict.

The question is why conflict induces an updated behavior that lead to weakening voters' support for the prevailing regime? To answer this critical question, our framework also integrates insights from the principal-agent theory (Downs and Rocke, 1994; Miller, 2005), where a principal (constituency or voters) elects an executive to act in alignment with their preferences. Miller (2005) underscores the principal's endeavor to align the agent's (executive's) self-interest with their own through the threat of punishment, in order to mitigate losses incurred from the misalignment of motives.

We hypothesize that voters, exposed to conflict, prioritize safety and security, determining their choice of leadership based on the latter’s capacity to provide these public goods (Downs and Rocke, 1994) and citizens preference for peace and security in time of conflicts (Laustsen and Petersen, 2017; Vasilopoulos et al., 2018; Laustsen, 2021). Voters observe peace or conflict and respond by either “rewarding” or “punishing” leadership accordingly. The presence and persistence of conflict signal state failure and leadership ineffectiveness in preventing or resolving conflicts.

Our study employs the principal-agent theory to conduct a comparative analysis, revealing striking similarities in voters’ behavior across political regimes. In both cases, voters demonstrate a tendency to hold incompetent leadership or regimes accountable through removal or preference for alternative leadership or regime. However, their preferences diverge significantly based on the prevailing regime type; voters favor democratic governance within authoritarian contexts and authoritarian rule within democratic settings in response to leadership failures in effectively addressing security issues.

In democratic settings, the public possesses the capacity to penalize or replace leadership for sub-optimal outcomes through elections. However, in authoritarian regimes, while voters could not directly unseat a leadership by means of election, the regime’s “insiders” can pressure the ruling regime or unseat failing leadership in response to citizen dissatisfaction (Miller, 2005; Weeks, 2012). Indeed, empirical findings corroborate that leaders initiating and losing costly conflicts face an 80% likelihood of replacement, a probability rising with the severity of defeat (Downs and Rocke, 1994). Downs and Rocke (1994) contend that this phenomenon is primarily observed in autocratic regimes characterized by heightened information asymmetry compared to democratic settings. Consequently, both democratic and authoritarian contexts exhibit instances where citizen actions influence leadership behavior (Frye and Borisova, 2019).

These theoretical arguments give rise to the following hypotheses:

Hypothesis 1: The effect of conflict on citizens’ support for authoritarian regimes is

contingent on the prevailing regime type.

In democracies, conflict should stimulate a preference for authoritarian regimes (H1a), whereas in authoritarian states, citizens are likely to favor more liberal policies and institutions (H1b). This hypothesis derives from the principal-agent framework, which posits that conflict, in conjunction with perceptions of the executive’s ineptitude in managing it, can propel citizens to seek an alternative executive as a form of “punishment” for the perceived shortcomings of the existing regime.

We argue that conflicts provide signal to voters about their prevailing leadership capacity to run the country. Conflict prompts citizens to scrutinize the leadership policies that tend to end the conflicts and decide whether or not to give their support to the prevailing leadership. Previous studies in democracies show that situational threats such as conflict (Laustsen, 2021), global pandemic, covid-19, (Vasilopoulos et al., 2022) prompt citizens to relinquish their civil liberties and rights, hence increase their support for strong leadership. The reason is that voters believe that strongman or restrictive liberties are necessary to counter situational threat. Therefore, we expect a support for authoritarian regime in democracy (H1a). However, what happens to voters in authoritarian regime who observe a failing leadership in a conflict context? We argue that when the belief that strongman or relinquishing their liberties does not lead to more peace or end of conflict, citizens are expected to seek alternative policies and leadership. Therefore, support for democracy, alternative way of solving the problem, negotiating over deterrence become a second best choice (Yan et al., 2020). The leadership aggressive behavior in a conflict context would be perceived as costly and voters could prioritize a more diplomatic approach to conflict, with more freedom and liberties (H1b).

Next, we investigate the mechanism behind voters’ shift in preference following instances of conflicts. The key argument is that, voters hold a key importance for peace and security in a conflict context. Therefore, they have a higher expectation on the prevailing leadership capacity to provide peace and security.



Hypothesis 2: The leadership's perceived inability to guarantee safety and stability is a pivotal factor driving shifts in voter preferences following a conflict.

In line with the principal-agent framework applied in a conflict context, the likelihood of a regime change hinges on the perceived competence of the leadership in preserving peace and stability. During conflicts, citizens prioritize security and safety over socioeconomic performance, and a regime's failure to provide these essential outcomes jeopardizes its legitimacy. If citizens perceive the leadership as incapable of delivering these desired outcomes, they may turn to alternative leadership and seek a different regime. This hypothesis underscores the executive's failure to provide citizens with peace, stability, and security as the mechanism through which conflict influences a shift in regime preference (Downs and Rocke, 1994; Miller, 2005).

We argue that conflict context prompts voters to be attentive on the leadership actions and policies. In normal times, individuals might be less likely to seek information about the leadership performance and capacity to provide their preferred public good compared to a conflict context. Citizens would be concern about the leadership ability to continue to provide socioeconomic goods such as basics health, jobs during hard times. The potential cost of conflicts could create anxiety and/or fear of economic losses, inducing an information-processing behavior. This information-processing behavior following situational threat (Sweeny, 2008; Ruthven, 2022) are critical to understand the updated behavior of citizens in a conflict context. While citizens could be more optimistic about their prospect of the socioeconomic outcome, we believe that the driving force of their preference for the prevailing leadership would be their updated perception of the leadership capacity to provide peace and security (Downs and Rocke, 1994; Laustsen, 2021). Therefore, our theoretical argument is that when faced with conflict, citizens update their belief regarding their prevailing regime capacity to provide peace and security.

## 2.3 Empirical methodology

### 2.3.1 Data

We conduct a comprehensive study to examine the impact of conflict on people’s support for authoritarianism. Our analysis utilizes data from three sources: the geocoded Afrobarometer (Round 7; Afrobarometer Data, 2020), the Armed Conflict Location & Event Data Project (ACLED; Raleigh et al., 2010), and the 2021 Democracy Index developed by the Economist Intelligence Unit (Democracy Index, 2021). In what follows, we discuss the construction of our dependent and main explanatory variables.

First, the Afrobarometer provides us with information on individuals’ residential locations and political attitudes and behaviors. Our dependent variable, *Support for no presidential term limits*, captures respondents’ support for no presidential term limits and is a proxy for their support for authoritarianism. It is based on the following question: “Which of the following statements is closest to your view? Choose Statement 1 or Statement 2. Statement 1: The Constitution should limit the president to serving a maximum of two terms in office. Statement 2: There should be no constitutional limit on how long the president can serve.” We re-code the responses assigning a value of one to those respondents who agree (either simply or very strongly) with Statement 2, while we assign a value of zero to those who (i) agree (either simply or very strongly) with Statement 1; or (ii) agree with neither statement.

Although the survey provides information about respondents’ support/rejection of democracy, it’s worth noting that this survey-based approach may encounter challenges related to the Information Equivalent (IE) assumption (Dafoe et al., 2018). Specifically, when respondents are asked about their support for democracy without additional contextual information, their responses may be influenced by a potential bias. This bias can arise because citizens might easily associate democracy with the “Western” democratic model, leading to difficulty in distinguishing between their support/rejection of democracy as a concept and their support/rejection of Western governance and values. This issue is especially pertinent

in regions where anti-Western sentiments are on the rise. To mitigate this challenge, the IE assumption offers a methodological framework for addressing such concerns within the context of a survey experiment. In observational studies, it is often feasible to employ a measure of democratic institutions that is less likely to violate the IE assumption, offering a more robust basis for analysis.

Limiting presidential terms, particularly in developing countries, is instrumental in fostering democracy by curbing executive power and promoting political competition, as observed in Hartmann (2022)’s research. This practice offers a reliable gauge of a nation’s democratic status, with democracies embracing term limits while authoritarian regimes resist them, often resorting to constitutional manipulation for extended rule. Such presidential term limits incentivize the leadership to adhere to the rule of law, remain accountable to citizens, and prioritize good governance, as they face post-tenure accountability. This enhances citizens’ political engagement (De Juan and Pierskalla, 2016), a democratic cornerstone, allowing them to choose effective leaders, promote positive societal change, and ensure peaceful and institutional conflict resolution. Conversely, authoritarian regimes suppressing basic rights and political participation stifle political engagement, potentially leading to social unrest.

Second, we obtained data regarding the conflict locations and dates in Africa from ACLED. Our study focuses on battles, explosions/remote violence, riots, and violence against civilians. We combine the Afrobarometer data and the ACLED data to construct the main explanatory variable, conflict exposure. The conflict exposure variable is an interaction term between a dummy variable for individuals surveyed after the first conflict event in their area during our sample period and a dummy variable for individuals located within 50km of the location of the conflict event in question. More specifically, the individuals surveyed before the first conflict event in their area are classified as “temporal controls” as they have no exposure to conflict during our sample period. On the other hand, those surveyed after the first conflict incident are classified as “temporally treated.”

We utilize geographical coordinates to identify individuals directly affected by conflict

within their country. The individuals directly exposed to conflict are referred to as “spatially treated” individuals, whereas the rest are classified as “spatial controls.” We use a 50km radius from the epicenter of hostilities to identify the former. The distance in question has been widely employed in the literature, as it accurately captures the area affected by a given conflict event in the context of Africa (e.g., given the quality of its infrastructure) without grouping together events of disparate origin (Walther et al., 2023; Buhaug and Gleditsch, 2008). In our robustness analysis, we also explore the effect of conflict on people’s support for authoritarianism at alternative distances in excess of 50km.

Using the Democracy Index, we divide the countries in our sample into democratic and authoritarian ones. The Democracy Index is constructed on the basis of five categories: “electoral process and pluralism,” “functioning of government,” “political participation,” “political culture,” and “civil liberties.” Based on their scores with respect to different indicators within these categories, countries are classified as “full democracies” (index value greater than 8, and less than or equal to 10), “flawed democracies” (index value greater than 6, and less than or equal to 8), “hybrid regimes” (index value greater than 4, and less than or equal to 6), or “authoritarian regimes” (index value less than or equal to 4). Full democracies are countries where: (i) there is respect for basic political freedoms and civil liberties; (ii) the government functions in a satisfactory way; (iii) media are independent and diverse; (iv) there are sufficient checks and balances; and (v) the judiciary is independent and its decisions are enforced. In flawed democracies, while there are free and fair elections and there is respect for basic civil liberties, there are substantial weaknesses in other aspects of democracy. For example, there are problems with the quality of governance or the level of political participation. By contrast, in hybrid and authoritarian regimes, there is severe malfunctioning in (almost) all aspects of democracy, with many authoritarian regimes being outright dictatorships. In this study, we assign a value of zero to full or flawed democracies<sup>1</sup> and a value of one to hybrid or authoritarian regimes.

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<sup>1</sup>These countries are: Cape Verde, Ghana, Lesotho, Namibia, Senegal, South Africa, and Tunisia.

Table 2.1 presents the descriptive statistics. Our dataset comprises 30 countries<sup>2</sup>, with more than 35,000 respondents, divided into around 25,000 for authoritarian countries and 10,000 for democratic countries. In terms of respondents' exposure to conflict, 68% of the respondents were interviewed after the first conflict in their respective areas, with 58.7% located within 50km from the conflict zone. The data also points out that 21.9 % of participants support authoritarian regimes. In the appendix, we provide an overview of descriptive

Table 2.1: Descriptive statistics

VARIABLES	(1) Observations	(2) mean	(3) sd	(4) min	(5) max
Support for no presidential term limits	33,506	0.219	0.414	0	1
Economic management	33,435	2.146	0.961	1	4
Jobs creation	33,903	1.886	0.897	1	4
Health services improvement	34,444	2.428	0.952	1	4
Election violence prevention	32,190	2.542	0.942	1	4
Community conflict reduction	32,498	2.605	0.913	1	4
Countering violence from armed extremists	13,861	2.587	0.997	1	4
Days	35,225	127.3	241.0	-440	610
Post conflict	35,305	0.671	0.470	0	1
Distance within 50km	35,305	0.587	0.492	0	1
Age	35,192	36.67	14.77	18	99
Age squared	35,192	1,563	1,313	324	9,801
Gender	34,070	0.499	0.500	0	1
At least completed secondary education	35,092	0.299	0.458	0	1
Employment status	31,835	0.341	0.474	0	1
Urban	33,779	0.562	0.496	0	1
Police station in the PSU/EA	34,967	0.318	0.466	0	1
Electricity grid in the PSU/EA	35,189	0.608	0.488	0	1

Notes: The number of countries is 30, with a total of 373 regions.

statistics categorized by treatment status (Table ??), regime type (Table ??), and proximity to conflict zones (Table ??). Table ?? shows a 6% increase in post-period support for authoritarian rule (23.8%) compared to the pre-period (17.6%). Table ?? reveals that in

<sup>2</sup>These countries are: Benin, Burkina Faso, Cameroon, Cape Verde, Cote D'Ivoire, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Senegal, Sierra Leone, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Zambia, and Zimbabwe.

democratic regimes 27% of respondents express a preference for no presidential term limit, against 20% in authoritarian counterparts, with neither regime type demonstrating greater support for authoritarian rules. Additionally, citizens in democratic countries are 38% more exposed to conflict compared to authoritarian countries, potentially indicating a heightened susceptibility to conflict onset in democratic countries. Finally, Table ?? underscores that respondents residing within a 50-kilometer radius of conflict zones exhibit a 3% lower preference for authoritarian rule (20.3%) in contrast to those residing at a greater distance (23.5%). These descriptive statistics offer valuable insights into the dynamics of regime preference in relation to conflict proximity and regime type.

The ACLED shows that 19.51% of respondents witnessed battles firsthand, 1.42% were exposed to explosions or remote violence, 43.40% experienced riots, and 35.67% witnessed violence against civilians. In Africa, riots and violence against civilians were particularly widespread, affecting 80% of the participants.

### **2.3.2 Empirical model**

To create effective policy responses, it is crucial to have a deep understanding of the causal impact of conflicts on political and economic outcomes (Blattman and Miguel, 2010; Verwimp et al., 2019; Vasilopoulos et al., 2022). To achieve this goal, our paper utilizes a natural experiment, employing a spatial-temporal estimation approach known as the spatial-temporal difference-in-difference. By taking into account respondents' proximity to conflicts, we aim to overcome selection bias and endogeneity issues through a quasi-experimental design (Knutson et al., 2017; Isaksson and Kotsadam, 2018; Chung and Rhee, 2022). We acknowledge that conflict distribution within countries is not random, and specific people and sub-national areas may be targeted, making it difficult to determine the causal relationship between conflict and individual political preference through a simple mean comparison between those near and far from the conflict zone. Therefore, leveraging the random dispersion of conflicts can provide a more accurate causal inference.

We test the parallel trend assumption to confirm no alterations in behavior or anticipation in response to regime change before the individual’s first encounter with conflict in their area. The spatial difference-in-difference model takes into account the distance of the respondents from the locations of the conflict, both in space and time, as follows:

$$Regime-Preference_{il(c)t} = \beta_0 + \beta_1 TemporallyTreated_{il(c)t} + \beta_2 SpatiallyTreated_{il(c)} + \beta_3 TemporallyTreated_{il(c)t} \times SpatiallyTreated_{il(c)} + X'_{il(c)}\theta + \gamma_c + \delta_t + \varepsilon_{il(c)t}$$

Where (i) individual, (l or c) locality or country, (t) time. The dependent variable, *Regime-Preference*, is measured using the variable “support for no presidential term limit”. In this study and in the rest of the paper, we use support for authoritarian to designate “support for no presidential term limit” and support for democracy for the rejection of “support for no presidential term limit”. The dependant variable is coded 1 for preference for authoritarianism and 0 for support for democracy.

The variable “Temporally Treated” refers to the treatment status after the initial conflict, while “Spatially Treated” measures the treatment status within a 50km radius of the conflict area :

Temporal treatment (post conflict):

- The treatment group: ( $t_i \geq t_e$ ): Respondents are surveyed after the conflict occurrence.
- The control group: ( $t_i < t_e$ ), Respondents whose survey day was before the conflict day.

Where  $t_i$  is the interview day and  $t_e$  is the day of the event (conflict).

Spatial treatment (distance within 50km):

- The treatment group ( $distance \leq 50km$ ): The respondent living area was within 50-kilometer radius from the nearest conflict.
- The control group, ( $distance > 50km$ ): These respondent reside outside a 50 kilometer radius from the nearest conflict zone.

The coefficient  $\beta_1$  measures the difference in regime preference or support for authoritarian regime between individuals surveyed before and those surveyed after an instance of

conflict in their nearest location. The mean difference does not capture the average effect of exposure to conflict because of the non random distribution of conflicts across Africa. Therefore,  $\beta_1$  is biased.

The coefficient  $\beta_2$  captures the mean difference between respondents being affected (directly or indirectly) by the nearest conflict in their location. The coefficient is potentially biased due to not taking into account the time trend. Indeed, there is no reason to believe that any confounding events such natural disaster does not occur during the period of our study. Therefore, to rule out or mitigate the potential bias due to the non random distribution of conflict and the existence of confounding events, the interaction between time treatment and spatial treatment provide a quasi-random exposure to conflict.

The coefficient of interest ( $\beta_3$ ) measures the average causal effect of exposure to conflict on voters' regime preference. Our analysis hypothesize a negative coefficient of interest, which means a support for democracy, for Africa due to the region's high presence of authoritarian regimes. For instance, the democracy index score for Africa (an average) was below 4.35 in 2017 and 4.36 in 2018. For authoritarian countries in Africa, we hypothesizes a negative coefficient, supporting the theoretical argument of support for democracy in authoritarian countries as a consequence of conflicts. On the other hand, in democratic countries, the coefficient is expected to be positive signaling a support for authoritarian regime in democracies. Citizens in democratic countries will be more likely to relinquish their civil liberties and rights when faced with conflict. Therefore, the positive coefficient suggest that voters in democratic countries adhere to the idea of no constitutional limit in the presidential term following conflicts.

The concept of regime shifting refers to a respondent's preference for a regime which differs to their prevailing regime. The shifting arise when the voter in a democratic country support an authoritarian policy, while in authoritarian countries there is a support for democracy following conflict.

The control variables  $X'$  comprise age, age squared, completion of at least secondary



education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA (Primary Sampling Unit/Enumeration Area).

The fixed effects for countries and years, represented respectively by  $\gamma_c$  and  $\delta_t$  respectively, aim to remove any potential confounding variables that may vary over time (such as the occurrence of natural disaster or any non-conflict related events that might affect voters regime preferences) and across countries. This ensures a clear and reliable relationship between exposure to conflict and the political behavior of voters.

The Ordinary Least Square (OLS) estimator, consistent with a quasi-experiment model proposed by Caudill et al. (1988); Deke (2014), was employed to estimate the coefficients. To address potential spatial correlation in the error term, we utilized a cluster standard error at the township level (Adhvaryu et al., 2021). We conduct different robustness checks using different rings around the conflict and checking for parallel trend assumption.

## **2.4 Empirical results & discussion**

### **2.4.1 Results**

Tables 2.2 and 2.3 present the main findings of this study, respectively, in the full sample of Africa and the sub-samples of democratic and authoritarian countries in Africa between the period of 2017-2018. Table 2.2 indicates that respondents in Africa reject authoritarian regime as a results of conflict, suggesting a heightened support for democracy in times of conflict.

Table 2.2 shows that conflict negatively impacts the citizens' support for no presidential term limit in Africa. Africans are 4.03 percentage points less likely to endorse authoritarian rule after experiencing conflict. This finding depart from the mainstream view that conflict drives voters support for more authoritarian/dominant leadership and non-democratic policies and institutions. Therefore, the impact of conflict on voters regime preference depends

Table 2.2: Preference for Democracy in Africa (rejection of authoritarian regime).

	(1)	(2)
Dependent Variable: Support for authoritarian regime		
Temporally treated	0.1071*** (0.0086)	0.0091 (0.0135)
Spatially treated	0.0273*** (0.0086)	0.0031 (0.0103)
Temporally treated $\times$ Spatially treated	-0.0765*** (0.0113)	-0.0403*** (0.0133)
Controls	No	Yes
Country fixed effect	No	Yes
Year fixed effect	No	Yes
Observations	33506	28358
$R^2$	0.008	0.051

Clustered standard errors in parentheses (at the township level)

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

Notes: The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

on their prevailing context and regime. Given that Africa is classified as non-democratic on average (see Index classification), there is a reason to believe that the difference in findings between our study and the mainstream view depends on the prevailing regime type of voters when conflict arise. Therefore, a comparative analysis of voters preference in democracy (newly democratic countries in Africa) and authoritarian or hybrid countries in Africa provide a comprehensive understanding of the dynamic behind voters preference for a regime type following instances of conflict. Who drives this preference shift in Africa among voters in democratic and authoritarian regimes?

Table 2.3 presents findings regarding voters preference for democracy by regime type.

Table 2.3 reveals that citizens living under authoritarian regimes are the drivers behind the preference for more democracy in Africa. The result indicates a significant decrease of 4.98 percentage points in voters' support for no presidential term limits in authoritarian regimes following a conflict. On the other hand, individuals residing in democratic regimes

Table 2.3: Preference for Democracy by regime type.

	(1)	(2)	(3)	(4)
	Democratic countries		Authoritarian countries	
Temporally treated	0.0200 (0.0253)	-0.0232 (0.0373)	0.0848*** (0.0094)	0.0077 (0.0150)
Spatially treated	-0.0967*** (0.0328)	-0.0846* (0.0481)	0.0299*** (0.0087)	0.0100 (0.0105)
Temporally treated $\times$ Spatially treated	0.0333 (0.0441)	0.0481 (0.0503)	-0.0714*** (0.0124)	-0.0498*** (0.0148)
Controls	No	Yes	No	Yes
Country fixed effect	No	Yes	No	Yes
Year fixed effect	No	Yes	No	Yes
Observations	7972	7821	25534	20537
$R^2$	0.006	0.030	0.005	0.052

Clustered standard errors in parentheses (at the township level)

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

Notes: (1) The dependent variable is support for authoritarian regime (“support for no presidential term limit”). (2) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

exhibit a preference for authoritarianism of 4.81 percentage points, although this coefficient is not statistically significant. Therefore, there is no clear evidence of a regime shift in democratic countries following a conflict. The lack of statistical significance could signify a small effect size or be due to unmeasured confounding variables in democratic settings. We use the same controls for comparability purpose in both regime, however, in democracy the low level of information asymmetry and the high speed of information flow could play a role on citizens updated behavior following conflict. Further investigations could provide evidence of citizens’ behavior in democratic countries in Africa post-conflict. Despite the non statistical evidence of support for authoritarian regime in democratic countries in Africa, the direction of the relationship between exposure to conflict and support for authoritarian regime is consistent with existing literature regarding voters support for authoritarian regime following a conflict.

Conflict induces a heightened support for democracy in authoritarian countries in Africa, while increasing voters support for authoritarian regime in democratic countries in Africa. Therefore, the preference for democracy in Africa is largely influenced by the experiences of those who have lived through conflict under authoritarian regimes. These findings suggest a clear tendency towards regime change as a response to such conflicts. There is a clear regime preference shift against the prevailing regime in conflict context.

## **2.4.2 Robustness checks**

### **2.4.2.1 Parallel trend and spatial spillovers**

The results above are consistent with critical assumptions such as the parallel trend (Table 2.4) and the spatial spillovers (Table 2.5).

In Table 2.4, on average, there is no parallel pre-trend. Months before the nearest conflict, voters could not anticipate it and therefore update their behavior accordingly, mainly in authoritarian regimes in Africa. This is probably due to asymmetry of information. While, in Democracy, this situation is only seen three months before the nearest conflict, while two months before, there is significant change in voters' behavior. As we mentioned above, this context could be driven by unmeasured confounding variables in democracy. Overall, our findings are robust with the parallel trend assumption.

Next, we conduct a robustness test to account for the distance spillovers. We created dummy variables for eight rings with a 50km radius for each, using the last ring as the reference ring. We expect respondents residing far away from the nearest conflict zone to be more likely to support democracy in Africa and the sub sample of authoritarian countries, while they are expected to be endorsing authoritarian regime when they reside in more democratic countries in Africa. The findings are consistent with our theoretical expectation (see Table 2.5). However, with regard to democracy, people within 100-150km are less likely to support no presidential term limits compared to those within 350-400km.

Despite our comprehensive efforts to enhance the reliability of our study, we acknowledge

Table 2.4: Parallel trend assumption by regime type.

	(1) Authoritarian countries	(2) Democratic countries	(3) Africa
Spatially treated $\times$ month(-2)	0.0050 (0.0219)	-0.0826** (0.0360)	0.0349 (0.0249)
Spatially treated $\times$ month(-3)	0.0105 (0.0172)	0.0137 (0.0506)	0.0130 (0.0181)
Spatially treated $\times$ month(-4)	-0.0237 (0.0204)		-0.0218 (0.0205)
Spatially treated $\times$ month(-5)	-0.0023 (0.0243)		0.0003 (0.0244)
Controls	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Observations	28358	7821	20537
$R^2$	0.050	0.029	0.052

Clustered Standard errors in parentheses (at the township level).

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

Notes: (1) Month(-1), one month before the conflict, is the reference month. (2) The dependent variable is support for authoritarian regime (“support for no presidential term limit”). (3) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

the inherent challenge of fully eliminating all potential sources of bias that might impact the relationship between conflict and regime preference. Factors such as natural disasters (Chung and Rhee, 2022) and pandemics like Covid-19 (Vasilopoulos et al., 2022) can exert significant influence on individuals’ political behavior, despite our inclusion of year fixed effects to mitigate potential confounding events during the survey design. Nevertheless, our study remains highly pertinent, unequivocally illustrating how conflicts in Africa can decisively alter voters’ preferences, working against the incumbent regime.

Our findings hold significant implications for comprehending individual political behavior amid conflict, shedding light on both the risks and opportunities that conflict presents for fostering sustainable democracy. This research provides vivid insights for researchers and

Table 2.5: Concentric rings around the conflict by regime type.

	(1)	(2)	(3)
	Authoritarian countries	Democratic countries	African countries
Temporally treated	0.1283*** (0.0294)	0.0189 (0.0493)	0.0890*** (0.0192)
Temporally treated × Distance (0-50km)	-0.1549*** (0.0297)	0.0077 (0.0612)	-0.1264*** (0.0196)
Temporally treated × Distance (50-100km)	-0.1128*** (0.0311)	-0.0239 (0.0646)	-0.0665*** (0.0232)
Temporally treated × Distance (100-150km)	-0.1424*** (0.0334)	-0.1589** (0.0618)	-0.1003*** (0.0255)
Temporally treated × Distance (150-200km)	-0.1348*** (0.0445)	-0.0013 (0.1348)	-0.1069*** (0.0382)
Temporally treated × Distance (200-250km)	-0.1511*** (0.0438)		-0.1138*** (0.0405)
Temporally treated × Distance (250-300km)	0.0090 (0.0825)		-0.1209 (0.0946)
Controls	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Observations	27021	6635	20386
$R^2$	0.052	0.039	0.053

Clustered standard errors in parentheses (at the township level).

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Notes: (1) We created dummy variables for rings with a 50km radius for each. The last ring, 350-400km, is the reference ring. (2) The dependent variable is support for authoritarian regime (“support for no presidential term limit”). (3) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

policymakers, facilitating a comparative analysis of the political legacies of conflicts.

### 2.4.2.2 Conflict type and their impact on the regime preference

Our main findings establish an impact of conflict against the incumbent regime in Africa, as well as in the sub-samples of democratic and authoritarian countries. In this section, we use the ACLED classification of conflicts to investigate the impact of each conflict type (riots, battles and violence against civilians) in voters preference for their prevailing regime. The goal of this analysis is to provide robustness of our findings across different conflict type. We

argue that conflicts acting as a signal for the incumbent regime failure induce an updating behavior working against their prevailing regime regardless of the type of conflict.

Table 2.6: Preference for authoritarian regime by violent event type in Africa.

	(1)	(2)	(3)	(4)	(5)	(6)
	Riots	Riots	Battles	Battles	Violence against Civilians	Violence against Civilians
Temporally treated	0.1358*** (0.0126)	0.0175 (0.0240)	0.0658*** (0.0232)	-0.0084 (0.0306)	0.0896*** (0.0163)	-0.0107 (0.0238)
Spatially treated	0.0353*** (0.0128)	-0.0043 (0.0181)	-0.0063 (0.0201)	0.0022 (0.0176)	0.0406** (0.0160)	0.0095 (0.0208)
Temporally treated $\times$ Spatially treated	-0.1078*** (0.0168)	-0.0529** (0.0226)	-0.0024 (0.0291)	-0.0299 (0.0260)	-0.0706*** (0.0203)	-0.0164 (0.0248)
Controls	No	Yes	No	Yes	No	Yes
Country fixed effect	No	Yes	No	Yes	No	Yes
Year fixed effect	No	Yes	No	Yes	No	Yes
Observations	15082	12950	7174	6092	10754	8863
$R^2$	0.012	0.057	0.006	0.050	0.004	0.063

Clustered standard errors in parentheses (at the township level).

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

Notes: (1)The dependent variable is support for no presidential term limit. (2) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

Table 2.6 shows the effect of each type of conflict on citizens' preference for their domestic regime in the full sample of Africa. The coefficient of interest is the interaction between temporal and spatial exposure to conflicts. The coefficient for the three type of conflict used in this study are all negative, and statistically significant for riots.

The results show that conflicts induce a rejection of authoritarian political system, hence heightening voters support for democracy in Africa. Although all three types of conflict induce a preference for the democratic regime in Africa, riots seem to drive this preference shift with a statistical significance and large magnitude (-5.29 percentage points, against -2.99 percentage points for battles and -1.64 percentage points for violence against civilians).

Tables 2.7 and 2.8 present the preference for authoritarian regime in democratic and authoritarian regimes in Africa. Table 2.7 shows no empirical evidence of a shift in preference against the prevailing regime in democratic countries. However, the sign of the coefficients is

Table 2.7: Preference for authoritarian rule by violent event type in democracies.

	(1)	(2)	(3)	(4)	(5)	(6)
	Riots	Riots	Battles	Battles	Violence against Civilians	Violence against Civilians
Temporally treated	0.0059 (0.0639)	0.0243 (0.0675)	-0.0057 (0.0300)	-0.0615 (0.0572)	0.0314 (0.0526)	-0.0738 (0.0888)
Spatially treated	-0.1269 (0.0790)	-0.0979 (0.0797)	-0.0067 (0.0702)	-0.0026 (0.1126)	-0.1149* (0.0637)	-0.1462 (0.1024)
Temporally treated × Spatially treated	0.0607 (0.0805)	0.0441 (0.0824)	0.0276 (0.0775)	0.0351 (0.1171)	0.0197 (0.0697)	0.0841 (0.1026)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5343	5222	977	964	1652	1635
$R^2$	0.006	0.038	0.001	0.041	0.012	0.033

Clustered standard errors in parentheses (at the township level).

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

Notes: (1)The dependent variable is support for no presidential term limit. (2) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

positive and points in the direction predicted by the literature. Conflicts induce a preference for authoritarian political system in democratic countries, working against the prevailing regime.

In authoritarian regimes (Table 2.8), all conflict type have a negative signs, with battles and riots exhibiting a statistical significant impact on voters regime preference. Citizens residing in authoritarian regimes, when faced with conflicts, reject authoritarian political system in which there is no presidential term limits. In the context and period of our study, riots have the most significant impact, with an 8.50 percentage points likelihood of rejecting authoritarian system, and battles a 6.33 percentage points. Regardless of the type of conflict, despite difference in magnitude and statistical significance, voters are induced by conflict to reject their prevailing political system in which a presidential term is limited (democratic system) or not (authoritarian system).



Table 2.8: Preference for authoritarian rule by violent event type in an authoritarian regime.

	(1)	(2)	(3)	(4)	(5)	(6)
	Riots	Riots	Battles	Battles	Violence against Civilians	Violence against Civilians
Temporally treated	0.1168*** (0.0149)	-0.0033 (0.0253)	0.0682*** (0.0253)	0.0237 (0.0361)	0.0605*** (0.0169)	-0.0228 (0.0255)
Spatially treated	0.0372*** (0.0129)	0.0116 (0.0184)	-0.0062 (0.0203)	0.0035 (0.0178)	0.0479*** (0.0162)	0.0196 (0.0214)
Temporally treated × Spatially treated	-0.1185*** (0.0195)	-0.0850*** (0.0270)	-0.0120 (0.0327)	-0.0633** (0.0299)	-0.0513** (0.0212)	-0.0071 (0.0265)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9739	7728	6197	5128	9102	7228
$R^2$	0.011	0.066	0.006	0.051	0.002	0.063

Clustered standard errors in parentheses (at the township level).

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

Notes: (1) The dependent variable is support for no presidential term limit. (2) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

### 2.4.3 Public preference and regime choice in conflict context

In this section, we investigate the reasons behind the preference for democratic governance in Africa, particularly in conflict-affected areas. To better understand this shift, we employ the principal-agent problem framework, which suggests that the principal(voters) use the “outcome-based incentives” (Miller, 2005) to even out the information asymmetry that benefits the agent (the executive/leader). Essentially, voters hold their leaders accountable for their performance in managing the country post-conflict and may either reward or punish them accordingly. In conflict-ridden areas, Downs and Rocke (1994) posit that stability and safety are the top priorities for voters. Therefore, the executive’s effectiveness is gauged by their ability to adequately address issues related to conflict.

In this study, we argue that conflicts prompt voters to seek out and process information regarding the leadership capacity to handle socioeconomic and security issues in the conflict-affected context. This information processing behavior in crisis context (Sweeny,

2008; Ruthven, 2022) induce a post conflict updated behavior/attitude regarding the regime ability to provide the voters with their expected outcome in a conflict context. We expect a positive evaluation of their prevailing regime when voters have enough reason to believe that their preferred outcome would be achieved in a context marked by conflict, and a negative evaluation when they hold a pessimistic post conflict beliefs about the leadership success in providing their preferred public good. Next, we analyze whether there is a consistency between their positive/negative evaluation of the regime, through the leadership performance and their rejection/support of their prevailing regime.

Theoretically, we expect a consistent behavior when it comes to their evaluation of security issues. When voters hold positive view about their leadership capacity to provide them with their preferred outcome, they reward them by strengthening their loyalty (more likely to support the prevailing regime); however, they punish the executive by shifting their support for an alternative regime when their receive negative signal regarding the leadership capacity to align with their post conflict preference.

Table 2.9 presents the perceived effectiveness of African leadership in managing socioeconomic and security issues. The findings show that respondents residing in conflict-ridden regions of Africa exhibit greater confidence in the executive's competence in managing socioeconomic issues, such as employment generation (5.8 percentage points) and providing basic health services (7.92 percentage points), and managing the economy (although the coefficient is not statistical significant). On the other hand, citizens tend to hold a pessimistic view concerning their leadership's performance in handling security issues with violence from armed extremists (- 9.11 percentage points) showing a strong statistical significance. Other security matters such as electoral violence and community conflict, although there is no statistical evidence, the coefficients are negative and suggest a negative evaluation of the leadership capacity to handle the security problems in a conflict context.

Overall, voters perceived their leadership as competent in handling socioeconomic issues but incompetent in handling security and violence issues. Consistent with our theoretical

Table 2.9: Perception of leadership performance.

	(1)	(2)	(3)	(4)	(5)	(6)
	Economic manage- ment	Jobs creation	Health service improve- ment	Election violence preven- tion	Community conflict reduction	Countering violence from armed extremist
Temporally treated	-0.0184 (0.0352)	-0.1879*** (0.0347)	-0.1569*** (0.0341)	-0.0342 (0.0364)	-0.0621* (0.0333)	0.0622 (0.0610)
Spatially treated	-0.0591** (0.0268)	-0.0976*** (0.0255)	-0.0714*** (0.0267)	-0.0370 (0.0276)	-0.0362 (0.0270)	0.0095 (0.0451)
Temporally treated × Spatially treated	0.0145 (0.0337)	0.0580* (0.0322)	0.0792** (0.0335)	-0.0271 (0.0342)	-0.0108 (0.0330)	-0.0911* (0.0546)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	28344	28778	29295	27341	27556	12034
$R^2$	0.122	0.068	0.071	0.088	0.074	0.105

Clustered standard errors in parentheses (at the township level).

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

Notes: The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

argument, we find that although citizens are more optimistic regarding how their prevailing regime handle socioeconomic issues, their pessimistic view about the management of their security and safety seems to be stronger, working against the prevailing regime type in Africa (authoritarian political system, the aggregate value of the Democracy index is around 4 out of 10), hence driving their preference for democracy in Africa.

Tables 2.10 and 2.11 provide regime-specific perceived competence of the leadership. In Democracies (see Table 2.10) there is a positive evaluation of the leadership handling of the socioeconomic outcome and a negative evaluation of the leadership capacity to handle the security and safety issues. Although the coefficients are not all statistically significant, there is a consistency in voter's behavior in a conflict context.

How does the voter's evaluation of the leadership performance resonates with their loyalty with their prevailing regime? Putting the voters satisfaction with their leadership handling of socioeconomic and security issues along with their preference for their prevailing regime,

Table 2.10: Perception of the leadership performance in democracies.

	(1)	(2)	(3)	(4)	(5)	(6)
	Economic manage- ment	Jobs creation	Health service improve- ment	Election violence preven- tion	Community conflict reduction	Countering violence from armed extremist
Temporally treated	-0.1659* (0.0997)	-0.2167* (0.1278)	0.0188 (0.0737)	0.1052 (0.0842)	0.0625 (0.0855)	1.1485*** (0.0650)
Spatially treated	-0.2477** (0.1184)	-0.3180** (0.1409)	0.0557 (0.1008)	0.1329 (0.1208)	0.0619 (0.1058)	-0.0143 (0.0593)
Temporally treated × Spatially treated	0.2310* (0.1224)	0.3222** (0.1437)	0.0464 (0.1047)	-0.1350 (0.1249)	-0.0801 (0.1085)	N/A N/A
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7471	7584	7679	6956	7132	1500
$R^2$	0.095	0.081	0.062	0.060	0.096	0.012

Clustered Standard errors in parentheses (at the township level).

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

Notes: The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

Table 2.10 shows that their satisfaction with the leadership management of socioeconomic issues does not prevent a shift of preference against the prevailing regime. Instead, their negative evaluation of the management of security issues (though not statistically significant) seems to drive their preference for authoritarian rule in democracy. Empirically there is a consistency in voters behavior/attitude regarding their evaluation of the leadership security and safety management and their preference for their prevailing regime. In both cases, there is no empirical evidence (no statistical significance). Theoretically, there is also a consistency between the direction of the effect of conflict on voters evaluation of their leadership and their regime preference. A negative evaluation of security issues is linked to a preference shift against the prevailing regime, suggesting that in democracies, citizens exposed to conflict hold a negative evaluation of their leadership capacity to provide safety and security. And this dissatisfaction leads to a preference for an alternative form of governance, where the presidential term is not restricted by the Constitution.

Table 2.11: Perception of leadership performance in an authoritarian regime.

	(1)	(2)	(3)	(4)	(5)	(6)
	Economic manage- ment	Jobs creation	Health service improve- ment	Election violence preven- tion	Community conflict reduction	Countering violence from armed extremist
Temporally treated	0.0034 (0.0404)	-0.1980*** (0.0381)	-0.1521*** (0.0391)	-0.0188 (0.0415)	-0.0623 (0.0384)	0.0778 (0.0618)
Spatially treated	-0.0507* (0.0277)	-0.0840*** (0.0261)	-0.0698** (0.0275)	-0.0393 (0.0283)	-0.0337 (0.0280)	0.0137 (0.0449)
Temporally treated × Spatially treated	-0.0131 (0.0385)	0.0154 (0.0365)	0.0165 (0.0382)	-0.0674* (0.0389)	-0.0353 (0.0383)	-0.1155** (0.0578)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20873	21194	21616	20385	20424	10534
$R^2$	0.120	0.065	0.076	0.098	0.068	0.095

Clustered standard errors in parentheses (at the township level).

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

Notes: The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, and the existence of an electricity grid in the PSU/EA.

In authoritarian regimes (see Table 2.11), we do not find empirical evidence of change in citizens' perceived competence of their leadership in handling socioeconomic matters. In addition, there is a difference in their perceived leadership performance depending on the type of socioeconomic outcome (negative evaluation when it comes to their management of the economy and positive for job creation and health service provision). On the other side, they perceive their leadership as incompetent in preventing electoral violence (-6.74 percentage points), countering violence from armed extremists (-11.55 percentage points) and reducing community violence (-0.0353 percentage points, though not statistically significant).

The findings in Table 2.11 provide evidence that in authoritarian regimes, although there is no clear evidence and consistency in voters satisfaction with the leadership performance in handling socioeconomic issues, voters are clearly dissatisfied with the management of security and safety issues in a conflict-affected context. Combining both their leadership evaluation and their preference for a regime following conflict, our findings support our theoretical

argument. Voters residing in authoritarian regime and in a conflict-affected context, shift their preference for a democratic form of governance where the presidential term is limited by the constitution, when they hold negative view in their leadership competence in managing security problems.

The findings suggest that voter's satisfaction with the leadership's performance in handling socioeconomic outcomes does not drive their regime preference. However, citizens' dissatisfaction with the current executive's ability to handle security and violence leads people to explore alternative regimes. This is consistent with the idea that in a conflict-affected context, citizens' top priorities are stability and peace (Downs and Roche, 1994). Therefore, a regime failure to provide this preferred good is punished through a shift in preference for an alternative regime.

#### **2.4.4 Discussion**

In a conflict context, the relationship between the governing leadership and the electorate is of utmost importance. The people's opinions regarding the government's handling of the situation significantly impact their decision to support the regime. When the leadership responds in a way that aligns with the majority of voters' preferences, it enhances the stability of the government, strengthens citizen loyalty, and garners support. Conversely, if the response fails to meet the voters' expectations, it can lead to a loss of trust and support (Downs and Roche, 1994; Miller, 2005).

First, the study reveals that in Africa, voters do prefer democratic rule, and this preference is driven by citizens living under authoritarian political systems. People who live in authoritarian regimes are more likely to seek democratic governance as a means of resolving conflicts. Citizens residing in African countries' adherence to democratic governance can be traced back to the past instances of political violence that have demonstrated the ineffectiveness of authoritarian regimes in ensuring safety, mitigating violence, and fostering stability. The capability of leaders to manage conflicts plays a crucial role in propelling the

move toward democratic governance and administration.

Second, we do not find evidence that people living in more democratic conflict-affected Africa prefer authoritarian regimes, unlike their peers in authoritarian regimes. Although conflict had no significant impact on preference in democratic regimes, the coefficients point in the predicted direction. To avoid a possible type II error, further investigation should be carried out to provide evidence of an effect consistent with voters' regime preference in modern democracies in conflict-affected contexts. Indeed, past research found that in conflict-affected areas, individuals under democratic governance tend to prefer authoritarian regimes. This preference for strong leaders and policies arises from a belief that these regimes can competently address security concerns and promote stability (Vasilopoulos et al., 2018; Petersen and Laustsen, 2020; Laustsen, 2021).

Third, this paper suggests that ineffective leadership could trigger a negative perception of the current government system. A leader's failure to ensure their citizens' safety and stability may jeopardize their political system. Surprisingly, and despite common assumptions, conflict may even create an opportunity for democratization in countries governed by authoritative leaders. But at the same time, it could put democracy at risk in more democratic African countries.

Other interesting findings relate to the impact of different types of conflict on voters' regime support. Riots do not typically lead to a desire for authoritarianism. Instead, citizens tend to place an even greater value on democracy during such times. People require a legal framework to voice their dissatisfaction and opposition to the government's failure to handle security and conflict issues. These findings are consistent with the full sample of Africa and the sub-sample of authoritarian African countries. However, we do not find any evidence of preference change in democracy. Likewise, Battles induce a preference for democracy, but only in Africa's sub-sample of authoritarian regimes.

This study employs the principal-agent problem framework to investigate how individuals' attitudes toward their domestic government can shift in the aftermath of a conflict. By

utilizing incentives that prioritize results and minimize information asymmetries, it is argued that voters may support alternative regimes as a result of their current leadership's incompetence in providing peace and stability, particularly regarding violent and conflict-related issues.

## 2.5 Conclusion

This article investigates the topic of democratic governance and institutions in Africa, with a particular focus on conflict-affected areas. Throughout history, the continent has experienced political turmoil and conflict, often characterized by authoritarian leadership such as one-party rule, military rule, and hybrid regimes that frequently manipulate the constitution to prolong presidential terms (Hartmann, 2022).

Research has consistently demonstrated that individuals favor authoritarian regimes over democratic ones during periods of conflict (Merolla and Zechmeister, 2009; Laustsen, 2021). Although this trend has been observed in developed countries, there is a dearth of information concerning preferences for various regimes in developing nations, particularly in Africa. The article asserts that voters' preference for a particular type of regime is determined by the domestic regime they live under when conflicts arise.

Based on data from Afrobarometer Round 7 and ACLED, this research uncovered that in Africa, citizens tend to favor democratic governance amidst conflict. This shift in preference is mainly influenced by those living under authoritarian regimes. In contrast, citizens of more democratic African countries tend to support authoritarian regimes after a conflict, which aligns with similar findings in modern democracies. Utilizing the principal-agent problem framework, our research reveals that in areas of Africa plagued with conflict, irrespective of the regime type, citizens view their leaders as incompetent in handling security issues.

Additional findings indicate that the type of conflicts experienced by citizens significantly impacts their preference for the domestic regime. The impact of riots, battles, and violence



against civilians on citizens' regime preferences is regime-specific. For instance, in a democracy, riots, battles, and violence against civilians boost people to prefer authoritarian rule, whereas, in authoritarian countries, they drive citizens to adhere to democratic values. However, the effect of riots is stronger and drives the shift in preference, particularly in Africa and the sub-sample of authoritarian regimes in Africa. The reason is that citizens tend to favor democratic governance when faced with riots, as they require a legal platform to express their dissatisfaction with their leadership's performance during times of conflict.

This paper highlights that the yearning for democratic political systems in developing countries, particularly in Africa, is genuine and stems from a tumultuous history of political violence, war, and terrorism. Moreover, the people living in authoritarian Africa are the driving force behind their preference for democracy, presenting a significant opportunity for democratic reforms in conflict-ridden areas. However, there is a potential risk of radical and authoritarian regimes emerging in conflict-affected democratic Africa. Consequently, it is crucial to support the current regime in maintaining stability and security to ensure the longevity of democratic institutions in Africa.

In conflict situations, the emergence of alternative regimes often results from diminishing trust or loyalty toward the current leadership. However, it remains uncertain whether voters can effectively change this regime and how the current leadership will respond to this shift in preference. Therefore, researchers must thoroughly examine the strategic actions taken by current leaders in response to voters' choices in a conflict-affected context.

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## Chapter 3

# Riots and Trust in the Police:

Natural Experiment using Riots in Africa.

## 3.1 Introduction

Police misconduct has become a trigger for intense protests and social disruptions, exemplified by events like the tragic demise of George Floyd and subsequent riots in France following the killing of Nahel Merzouk in June 2023. Riots, as supported by prior research (Morrell et al., 2011; Bridges, 2012), not only unravel the social fabric but also exact a substantial toll on affected citizens and communities (Panel, 2012). During such turbulent periods, an upsurge in the demand for police services is expected, accompanied by heightened expectations regarding police behavior and effectiveness. Extensive scholarly research has underscored the profound impact of police behavior or conduct (Nivette et al., 2023; Nägel and Lutter, 2023) and effective task performance (Tankebe, 2008; Draca et al., 2011) on the overall image, trust, and legitimacy of the police. These dynamics hold significant implications in term of policing in riotous context which aims at bolstering state legitimacy and the policing in tumultuous period. Trust and legitimacy, as established by Tyler (2005, 2011), are pivotal for fostering cooperation between citizens and the police, with their erosion potentially impeding crime prevention and state credibility.

Although numerous research have investigated the relationship between citizens and the police, specifically the impact of police's unwarranted behavior on public trust and support (Pickett et al., 2022; Weisburd et al., 2022), there are limited studies investigating how exposure to riots affects public trust in the police (Nägel and Lutter, 2023). These studies, because of their focus on the police misconduct, do not consider the riots itself as the treatment, which can convey information about the policing and affect citizens trust in their police. During riots, not only triggered by police misconduct, citizens are more concern about the post-riots handling of the riots, and not only driven by prior negative image of the police (?). ? show that in the aftermath of riots, the public may hold positive, neutral or negative opinion regarding the police response, but also they are concern about the police fairness and competence. Indeed, managing riots and ensuring that citizens and communities are safe is the primary role of the police (Leary, 1964), particularly in turbulent context.



Does riots always destroy public trust in the police? Or the impact of riots on public trust in the police depends on the citizens perceived police behavior and effective task performance following instances of riots? The aftermath of riots resulting from instances of police misconduct represents a unique scenario where citizens, harboring pre-existing negative perceptions of police behavior, inevitably project these sentiments onto their overall attitude toward the police. In this study, I aim to broaden the scope of existing research on the police-citizen relationship in the aftermath of such incidents, seeking to illuminate the impact of citizens' exposure to riots on their trust in the police. Moreover, it aims to discern whether this trust is contingent upon the conduct of the police and their effective task performance during and after instances of civil unrest.

The theoretical premise of this paper is straightforward: riots disrupt social order and impact individuals exposed to them. The police, primarily tasked with crowd management during such scenarios, play a crucial role in securing businesses and individuals in affected areas, thereby facing heightened public expectations. When the police is perceived to effectively restore social order and align with public expectations, an increase in trust in the police is anticipated. Conversely, failure to meet these expectations is likely to diminish public trust in the police.

Moreover, this study investigates the conditional impact of riots on public trust in the police, taking into account factors such as ethnicity and neighborhood characteristics. Existing literature recognizes ethnicity and neighborhood attributes, particularly social capital, as influential factors shaping citizen trust in the police (Goncalves and Mello, 2021; Hoekstra and Sloan, 2022; Pickett et al., 2022). This research seeks to explore the extent to which individuals who perceive unfair treatment based on their ethnic group or race maintain trust in the police amid riotous contexts. Additionally, it investigates how neighborhood types, characterized by varying levels of bonding or social capital, shape citizens' perceptions of the police role following instances of civil unrest. Building on prior studies emphasizing racial bias and discrimination in the police-citizen relationship, this research contributes by

examining the effect of ethnic discrimination and social capital in influencing trust in the police in riotous context.

Finally, scant scholarly attention has been directed toward examining the police-citizen relationship in non-Western contexts, notably the African context (Tankebe, 2008). Despite studies exploring crucial aspects like community policing (Kyed, 2009) and police reform (Rauch and Van der Spuy, 2006) in Africa, the bulk of police studies have largely fixated on Western nations (Nägel and Lutter, 2023; Nivette et al., 2023). Africa presents a unique context relatively untouched by deeply embedded racial dynamics, which allows investigation of police-citizen relations beyond the lens of Black and White.

This study employs two data sets, the Afrobarometer (Round 7; Afrobarometer Data, 2020) and the Armed Conflict Location & Event Data Project (ACLED). I utilize a spatial difference-in-difference (DID) analysis to examine the impact of exposure to riots on public trust in the police. I focus on individuals surveyed post-riot, residing within 50 kilometers of riot-affected areas across diverse African countries between 2017 and 2018. This paper's design distinguishes itself by analyzing multiple events across multiple countries, enhancing external validity compared to previous studies limited to one high-profile event in a single country.

Key findings of this study reveal a post-riot increase in public trust in the police, driven by a positive police image and effective task performance. Moreover, trust is bolstered when ethnic groups are treated equitably, and strong social bonds exist within communities (Peyton et al., 2019). These findings carry significant implications. Firstly, they highlight the emergence of positive trust among citizens exposed to riots, aligning with Schaap (2021)'s argument that previous studies focusing solely on trust decline due to police misconduct sometimes overlook the positive trust that might emerge from police-citizens relationship. Secondly, they emphasize the public's consideration of both police conduct and effectiveness in rebuilding the post-riot trust in police. Thirdly, ethnic discrimination hampers trust restoration efforts, urging policymakers to address discrimination issues. Lastly, social bond-

ing fosters trust rebuilding in turbulent times.

## 3.2 Riots and trust in police: Theoretical expectations

This article builds upon previous studies on the process-based theory (Nix et al., 2015; Nägel and Lutter, 2023; Nivette et al., 2023) and the social capital theory (Hawdon, 2008).

The process-based theory, also known as procedural justice theory, posits that direct negative encounters with the police might lead to decreased trust among citizens. This trend is also observed with indirect encounter with the police (Rosenbaum et al., 2005). These theories suggest that the quality of the relationship between the citizen and their police is contingent upon the nature of their encounter. A negative encounter leads to a loss of trust, while a positive encounter improves trust and foster citizens cooperation with the police (Peyton et al., 2019). In a field experiment, Peyton et al. (2019) shows that a door-to-door visit of the police to households improves the public perception of the police image, their evaluation of the police job performance, the citizen willingness to cooperate with the police, and to comply with police directives. These positive outcomes from the positive police encounter with the public is critical for fostering resilience of new democracies in the face of tumultuous contexts which might lead to democratic backsliding.

Do riots always deter public trust in the police? In this study, I contend that the outcome hinges on the police's response to heightened demands for safety. Amid riots, individuals expect the police to manage crowds, restore social order, and respond professionally. My theoretical framework posits that effective police actions, ensuring safety without resorting to unwarranted behavior, lead to citizen reward, fostering trust and cooperation. Conversely, ineffective responses result in punishment, manifesting as trust erosion, legitimacy challenges, and non-cooperation.

While ? finds that citizens disapprove of protests framed as violent, supporting repressive policing, subsequent studies indicate that exposure to police violence enhances citizens'

mobilization and willingness to participate in protest (??). In field experiments, Metcalfe and Pickett (2022) reveal public opposition to repressive protest policing, implying potential trust erosion after police use force during riots. Trust restoration is expected if the police respond professionally and adhere to rules (Leary, 1964).

One of the limitation of this study is that I could not directly observe instances of police brutality to gauge whether public trust in the police stems from citizens' opposition to the use of force. The information provided by the ACLED data-set is unclear on the use of brutality during the management of riots. Nonetheless, building on previous research, the study explores potential channels through which riots may impact public trust. Specifically, it investigates citizens' evaluations of police behavior, focusing on factors such as perceived corruption of the police and whether citizens feel compelled to resort to bribery to seek assistance or avoid issues with the police. Indeed, the perceived police corruption by the citizens deters the police image, and negatively affect the relationship between citizens and the police. The trust between the citizens and the police is destroyed when the police is perceived to be corrupt (Gerber and Mendelson, 2008; Semukhina and Reynolds, 2014), mainly in a context when there is heightened demand for police assistance and higher expectation of professionalism and fairness in their task performance. Weisburd et al. (2022) show in a randomized control trial that procedural justice training encourage fair and respectful policing and improve evaluations of the police and crime prevention effectiveness.

Second, I argue that the perceived effectiveness of the police task performance improves the public trust in the police (Crowl, 2017; Tankebe, 2008). Among the police task, providing assistance to the public in an every day basis is important for building trust. An important task of the police is combating crime and providing safety in the neighborhood. Draca et al. (2011) shows that the police deployment reduces crime following the 2005 terror attacks in London. I expect an increase in the public trust in the police when citizens perceived the police as being capable of fighting crime. The literature measured the perceived police performance in crime reduction through the number of crime reduced or how the public fear

crime or violence in their neighborhood.

Finally, I investigate the conditional effect of riots on the public trust in the police. Previous studies emphasize the critical roles of ethnicity and the level of social capital in the neighborhood in shaping this trust (Hawdon, 2008; Weitzer, 2015). Racial bias in policing further complicates the police-citizen relationship, evident in studies highlighting disproportionate force in Black neighborhoods (Hoekstra and Sloan, 2022) and disparities in treatment between Black and White individuals (Goncalves and Mello, 2021). Pickett et al. (2022) notes from a field experiment that while White respondents feel safe, Black respondents harbor fears of police violence. Notably, about half of Black respondents prefer facing robbery over encountering the police without provocation. The level of community bonding, as indicated by social capital, serves as a significant signal of trust in the police (Hawdon, 2008). Neighborhoods with high social capital exhibit positive trust, whereas lower bonding fosters suspicion. Additionally, Hawdon (2008) argues that police misconduct significantly impacts trust, offering insights into the surge in police trust observed post-riots.

**Main hypothesis:** I hypothesize that exposure to riots positively (negatively) affect voters perception of police image and effective task performance, thus improving (detering) public trust in the police.

### **3.3 Empirical methodology.**

### **3.4 Data and methods**

#### **3.4.1 Data and context**

In this research, I focus on examining the level of public trust in their local police force, among individuals exposed to instances of riots. To gather the necessary information, I utilize data from the Afrobarometer (Round 7; Afrobarometer Data, 2020) and the Armed Conflict Location & Event Data Project (ACLED).

First, the Afrobarometer provides information on individuals' residential locations and political attitudes and behaviors. The dependent variable, trust in the police, captures the extent to which citizens trust their police. The measure is based on the following question: "How much do you trust each of the following, or haven't you heard enough about them to say: The Police?" The variable is a 4-point Likert scale ranging from zero ("Not at all") to three ("A lot"). For respondents who have little or no trust in the police, I assign a value of zero. On the other hand, if they trust the police to some extent or a lot, a value of one is assigned.

Second, I obtained data regarding the conflict locations and dates in Africa from ACLED. This study focuses on riots. I combine the Afrobarometer data and the ACLED data to construct the main explanatory variable, conflict exposure. The conflict exposure variable is an interaction term between a dummy variable for individuals surveyed after the first conflict event in their area during the sample period and a dummy variable for individuals located within 50km of the location of the conflict event in question. More specifically, the individuals surveyed before the first conflict event in their area are classified as "temporal controls", as they have no exposure to conflict during the sample period. On the other hand, those surveyed after the first conflict incident are classified as "temporally treated."

I utilize geographical coordinates to locate individuals directly or indirectly affected by conflicts within the country. The individuals directly exposed are referred to as "spatial treated" individuals, whereas those who have not been exposed are called "spatial control" individuals. I identify treatment arms within a 50km radius of the buffer zone. This distance has been deemed reasonable for practical commuting distances in Africa and to avoid any potential biases resulting from using distances that are either too short or too long (Buhaug and Gleditsch, 2008; Knutsen et al., 2017; Walther et al., 2023). For robustness, I conduct further analyses using concentric rings of 50 kilometers around the conflict.

This research examines how exposure to riots affect people's trust in the police by using a comprehensive dataset. The study uses a spatial difference-in-difference approach to draw

Table 3.1: Descriptive statistics

Variable	Observation	Mean	Std. deviation	Min	Max
Trust in the police	15,533	0.511	0.500	0	1
Corruption of the police	14,548	1.631	0.912	0	3
Pay bribe to the police to get assistance	14,997	0.0392	0.194	0	1
Pay bribe to the police to avoid problem	14,369	0.0873	0.282	0	1
Better or worse: get assistance from the police	15,314	3.150	1.051	1	5
Fear crime in the neighborhood	15,773	0.317	0.465	0	1
Fear political violence or intimidation	15,601	0.500	0.500	0	1
Feeling ethnic centered	14,187	0.133	0.340	0	1
Ethnic group treated unfairly	13,591	0.322	0.467	0	1
Dislike neighborhood: Different ethnicity	14,902	0.0721	0.259	0	1
Dislike neighborhood: Different religion	15,672	0.106	0.308	0	1
Spatial treatment (distance within 50km)	15,796	0.569	0.495	0	1
Temporal treatment (surveyed after riots)	15,796	.708977	0.4	0	1
Days	15,716	170.8	253.6	-423	610
Age	15,702	36.61	14.87	18	99
Age squared	15,702	1561	1322	324	9801
Gender (female)	15,011	0.497	0.500	0	1
Completed at least secondary education	15,691	0.317	0.465	0	1
Employment status	14,663	0.352	0.478	0	1
Urban	15,303	0.623	0.485	0	1
Police in the PSU/EA	14,436	0.270	0.444	0	1
Electricity grid in the PSU/EA	15,720	0.616	0.486	0	1
Post office in the PSU/EA	15,111	0.162	0.369	0	1

Notes: The data contain 30 African countries.

meaningful conclusions by analyzing the spatial and temporal distance from the initial riots. Table 3.1 provides important information about the dataset, including key dependent variables like "Trust in the police." The results show that around 51% of respondents trust the police, regardless of whether they were surveyed before or after riots in their area. Additionally, respondents exposed to riots perceived the police as 17% less corrupt and were 0.7% less likely to pay bribes to avoid problems with the police. The study also found that respondents had a more positive perception of police effectiveness in assisting, with a 4.9% improvement. Despite a 9.2% decrease in fear of political violence, fear of neighborhood crime increased by 3.9% for respondents exposed to riots.

### 3.4.2 Post-riots context in Africa

The ACLED dataset offers comprehensive insights into the occurrence of riots in Africa, including key details such as the number of casualties and the intensity of these events. These

riots have had significant and often devastating impacts on individuals, both physically and economically.

Over the period January 1, 2017, to June 30, 2023, Africa witnessed a substantial 21,416 incidents of riots, resulting in 8,058 fatalities. Notably, the highest frequency of riots occurred in 2021, with 4,103 recorded events. As of June 30, 2023, there have been 2,247 riots, compared to 2,382 events in 2017. Several African countries, including South Africa (4,142 riots, 790 fatalities), the Democratic Republic of Congo (1,729 riots, 1,065 fatalities), Nigeria (1,911 riots, 1,148 fatalities), and Kenya (2,175 riots, 829 fatalities), have experienced a significant number of riots during this period. Particularly concerning is the Democratic Republic of Congo, with a fatality-to-riot ratio of 62%, and Nigeria, with a ratio of 60%, highlighting the deadly nature of these riots on the continent.

The root causes of these riots in Africa are diverse, encompassing conflicts within communities, ethnic tensions, protests against foreigners, dissatisfaction with local and national leadership, and violent demonstrations in response to police killings or misconduct. These multifaceted origins underscore the complexity of addressing and mitigating the impact of riots in the region.

The ACLED dataset provides detailed accounts of various causes behind riots. Below are a few illustrative cases drawn from the ACLED data:

*Clashes Over Marriage in Niger:* On October 1, 2017, clashes erupted between townships from Gaya (Niger) and Garou in Garou (Malanville, Alibori). The violence stemmed from a dispute over a marriage between two individuals from these respective localities.

*Violence Against Foreign Nationals in South Africa:* On April 12, 2017, a foreign national was killed, and his residence was set ablaze by a group in Kwelera township (Eastern Cape), South Africa. Reports indicate that the group expressed discontent with the presence of foreign nationals in the area.

*Looting and Destruction in Ntuzuma, South Africa:* On May 29, 2017, a series of shops and vehicles, some owned by Somali asylum seekers, were looted and vandalized during



marches in Ntuzuma and Richmond Farm, Ntuzuma (KwaZulu-Natal), South Africa. The unrest was sparked by circulating social media reports of child kidnappings implicating foreign nationals. These events also resulted in the injury of a child by a private security officer.

*Police-Citizen Encounter in Manenberg (South Africa)*: On April 18, 2017, in Manenberg, an incident occurred where police officers were arresting a teenager found in possession of drugs. Angry residents attacked the officers, pelting their vehicles with stones and demanding the teenager’s release.

These incidents underscore the diverse and complex array of factors that can trigger riots, ranging from local disputes and ethnic tensions to xenophobia and public reactions to police actions.

### 3.4.3 Model

To empirically investigate the causal impact of exposure to riots on an individual’s trust in the Police, I conduct a difference-in-difference model, known as spatial difference in difference. I use the 50-kilometer from the riot area as commonly used in the field to capture spatial exposure to natural disaster (Chung and Rhee, 2022), to projects with spillover effects (Isaksson and Kotsadam, 2018; Knutsen et al., 2017) and conflict (Walther et al., 2023).

Considering the spatial and temporal distance of the respondents to the conflict’s locations, I constructed the spatial-temporal difference-in-difference model as follows:

$$\text{Trust police}_{il(c)t} = \beta_0 + \beta_1 \text{TemporallyTreated}_{il(c)t} + \beta_2 \text{SpatiallyTreated}_{il(c)} + \beta_3 \text{TemporallyTreated}_{il(c)t} \times \text{SpatiallyTreated}_{il(c)} + X'_{il(c)}\theta + \gamma_c + \delta_t + \varepsilon_{il(c)t}.$$

Where (i) individual, (l or c) locality or country, (t) time. The dependent variable, *Trust police*, measures self-reported trust in the police. The *Spatially Treated* variable identifies individuals within 50km of a riot. The *Temporally Treated* variable captures whether a given respondent was interviewed after a riot; The variable “Temporally Treated” refers

to the treatment status after the initial conflict, while “Spatially Treated” measures the treatment status within a 50km radius of the conflict area :

Temporal treatment (post riots):

- The treatment group, ( $t_i \geq t_e$ ): The treatment is exposure to riots and comprise the respondent surveyed after the riots occurred in their area.
- The control group: ( $t_i < t_e$ ). This group comprise the respondents whose survey day was before the conflict day and are not affected by the riots.

Where  $t_i$  is the interview day and  $t_e$  is the day of the event (riots).

Spatial treatment (distance within 50km):

- The treatment group ( $distance \leq 50km$ ): The treatment is proximity with a riot incident and captures respondent residing within 50-kilometer radius from their nearest riots location.
- The control group, ( $distance > 50km$ ): regroups all respondents residing outside a 50 kilometer radius from the nearest riots zone (far enough to not be affected by the riots).

The coefficient of interest is  $\beta_3$ , which measures the causal impact of exposure to riots on the public trust in the police.

<b>Treatment status</b>	Temporally treated	Temporally controlled	Mean difference
Spatially controlled	$\beta_0 + \beta_1$	$\beta_0$	$\beta_1$
Spatially treated	$\beta_0 + \beta_1 + \beta_2 + \beta_3$	$\beta_0 + \beta_2$	$\beta_1 + \beta_3$
Mean difference	$\beta_2 + \beta_3$	$\beta_2$	$\beta_3$

Table 3.2: DAG causal inference

First, the coefficient  $\beta_1$  measures the difference between respondents interviewed after and before the riot date. For the mean difference between the public trust in the police among individuals surveyed after and before the riots, to be causal, there should not be a difference between individual’s residing closely or farther from from the riots. Respondents should be randomly distributed around the riots date. In Table 3.2,  $\beta_2$  should be equal to zero. Because of the non-distribution of conflict within regions, and citizens non-random

choice of their place of residence, there no reason to believe that there is no difference between respondents based on their location ( $\beta_2 \neq 0$ ).

Second, the coefficient ( $\beta_2$ ) measures the difference in trust between people living within 50km of a conflict location and those living outside. This coefficient capture the spatial exposure to the riots. This coefficient does not capture the causal effect of individual exposure to conflict because it doe not control for some confounders that could change over time. Indeed, there is no reason to believe that the spatially treated (within 50km) and the spatially controlled (outside 50km) will behave similarly over time (Hence  $\beta_1 \neq 0$ ). In addition, it does not account for difference among respondent based on their exposure to the riots (some respondents are surveyed before and some after the riots).

Third, to account for the non-random distribution of conflict ( $\beta_2 \neq 0$ ) and the time trends ( $\beta_1 \neq 0$ ), the main coefficient of interest is the coefficient  $\beta_3$  of the interaction *Temporally Treated*  $\times$  *Spatially Treated*.  $\beta_3$  measures the causal effect of exposure to riot on citizens' trust in the police. It provides a quasi-experimental design that allows a causal interpretation of the results.

Finally, I control for a set of covariates at individuals and regional level, as well as controlling for country and year fixed effect. The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the Primary Sampling Unit(PSU) / Enumeration Area (EA), the existence of a post office in the PSU/EA. The coefficients are estimated using the linear probability model (OLS estimator) consistent with the quasi-experiment model (Caudill, 1988; Deke, 2014).

For robustness, I use different rings of a 50-kilometer around the riot zone to account for the spillover effect, and I conduct a test to check the parallel trend assumption.

## 3.5 Results and discussion

### 3.5.1 Perceived police behavior, effectiveness and trust in the police

This study examines how citizens' exposure to riots influences their trust in the police. I hypothesize that exposure to riots will lead to an increase (decrease) in citizens' trust in the police when they positively (negatively) evaluate police behavior and positively (negatively) rate their task performance or effectiveness. Hence, policing in riotous contexts should prioritize enhancing the police image and task performance. This approach aims to strengthen citizens' trust in the police and foster cooperation between citizens and the police.

**Increased trust in the police following riots.** The results presented in Tables 3.3 and 3.4, column 1, offer empirical evidence of a significant increase in trust in the police for individuals exposed to riots. This observed positive shift in trust stands in contrast to the prevailing discourse within existing studies, which predominantly explore the adverse consequences of police misconduct on public trust in police. This study finds a 7.52 percentage point increase in citizens trust in the police following instances of riots.

What sets this study apart is its distinct focus; rather than establishing a direct causality between police misconduct and public trust in the police, it endeavors to discern the connection between trust in the police and the exposure to riots, irrespective of their underlying causes, which may encompass police misconduct. This analytical approach is novel in its emphasis on the primary concerns of citizens confronted with instances of civil unrest. Namely, it centers on how the police can impartially deliver support and ensure the safety of the communities they serve during such tumultuous events. By doing so, it provides a distinctive lens through which to scrutinize the role of the police within their respective communities and how the public perceives their capacity to effectively execute their duties in the best interest of citizens.

Table 3.3: Exposure to riots on trust in the police and police behavior.

	(1)	(2)	(3)	(4)
	Trust Police	Corruption: police	Pay bribe to get police assistance	Pay bribe to avoid problem with police
Temporally treated	-0.0987*** (0.0321)	0.0522 (0.0535)	0.0018 (0.0075)	-0.0380*** (0.0142)
Spatially treated	-0.0613** (0.0245)	0.0576 (0.0463)	0.0081 (0.0068)	-0.0066 (0.0121)
Temporally treated $\times$ Spatially treated	0.0752*** (0.0292)	-0.0496 (0.0535)	-0.0156* (0.0088)	-0.0087 (0.0146)
Controls	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	11698	10823	11876	11159
$R^2$	0.117	0.098	0.040	0.054

Clustered standard errors (se) in parentheses. I clustered the se at the township level.

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

Notes: (1) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA.

This finding suggests that riots may not inherently lead to a loss of trust in the police. The study highlights that the observed decline in trust following riots in previous research may be attributed to police misconduct rather than the riots themselves, which are often triggered by such misconduct (Nägel and Lutter, 2023). When citizens engage in riots to express dissatisfaction with socioeconomic conditions or policing, their relationship with the police becomes complex. Riotous contexts convey information about the quality and nature of policing. Policing that prioritizes professionalism and effectiveness garners positive public evaluation, fostering a strong police-citizen relationship built on trust. Conversely, instances of poor policing, such as the use of force or corruption, revealed during riotous contexts result in public disapproval and a breakdown in police-citizen relations.

In Tables 3.3 and 3.4, columns 2, 3 and 4, I present the potential channels through which exposure to riots could affect the trust in the police.

Table 3.4: Exposure to riots on trust in the police and police effectiveness.

	(1)	(2)	(3)	(4)
	Trust Police	Better: Get police assistance	Fear crime	Fear of political violence
Temporally treated	-0.0987*** (0.0321)	-0.1934*** (0.0709)	0.0154 (0.0274)	0.1009*** (0.0331)
Spatially treated	-0.0613** (0.0245)	-0.1247** (0.0571)	0.0712*** (0.0201)	0.0586** (0.0239)
Temporally treated $\times$ Spatially treated	0.0752*** (0.0292)	0.1542** (0.0658)	-0.1142*** (0.0260)	-0.1227*** (0.0294)
Controls	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	11698	11532	11894	11769
$R^2$	0.117	0.048	0.039	0.143

Clustered standard errors (se) in parentheses. I clustered the se at the township level.

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

Notes: (1) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA.

Existing studies suggest that trust in the police might be driven by the police (mis)conduct or behavior (Peyton et al., 2019; Nägel and Lutter, 2023; Nivette et al., 2023) and effectiveness (Tankebe, 2008).

**Police behavior and trust in the police.** Hawdon (2008) argued that when the police behave in an unwarranted manner, they are more likely to deter the trust of the citizens. Although police use of brutality and racial profiling is widely used in the literature as measures of police misconduct (Goncalves and Mello, 2021; Hoekstra and Sloan, 2022), in this study, I utilize police corruption as police behavior that can deter trust. Previous studies found that corruption of the police negatively correlates with public’s trust in the police (Semukhina and Reynolds, 2014; Gerber and Mendelson, 2008). The findings in Table 3.3 show no evidence of change in people’s opinion regarding police corruption in general (column 2)

and their perceived likelihood of paying bribes to evade problems with the police (column 5). The coefficient still points in the direction of a positive image of the police behavior following instance of riots, with a 4.96 percentage point decrease in citizen's perception about the police being corrupt, and 0.8 percentage points decrease in citizens report of bribing the police to avoid problem. There is an empirical evidence that citizens have changed their opinion on the probability of resorting to bribery to secure police assistance (column 4). The result indicates a 1.56-percentage point decrease in citizens reported likelihood of resorting to bribery to solicit police aid, following instances of riots. The positive perception of police image in the context of riots is consistent with the increased trust in the police. (Peyton et al., 2019) provide evidence of an increase in public trust and support to their police when the police improves its image and behavior (Weisburd et al., 2022).

**Police effectiveness and trust in the police.** Table 3.4, column 2, 3 and 4, presents the findings regarding police effectiveness. Studies suggested that police effectiveness in fighting crime or reducing fear of crime and providing assistance to citizens might improve citizens' trust in police and ameliorate people's perception of the police legitimacy (Tankebe, 2008; Draca et al., 2011; Crowl, 2017). Police effectiveness is measured in the literature by improved police assistance, reduced fear of crime or violence, or reduced crimes. Table 3.4 shows that people have a positive evaluation of the police effectiveness following riots. They find it better to get police assistance (15.42 percentage point increase), they feel less fearful of crime in their neighborhood (-11.42 percentage point decrease), and they are less likely to fear political violence or intimidation during elections (-12.27 percentage point decrease).

Overall, the findings suggest that in the aftermath of riots, the positive change in trust in the police is attributed to their positive perception of the police conduct and the police effectiveness in handling security matters. The study contributes to the current literature in police studies by providing empirical evidence of positive trust in the police in riotous context. Policing in riotous context should be mindful of improving citizens' perception of

the police behavior and their effective task performance.

These findings, though initially surprising, are coherent when we examine the aftermath of riots in African context. In recent years, African police and the broader security sector have received substantial support from donors to enhance security and bolster their pivotal role in post-conflict peacekeeping (Rauch and Van der Spuy, 2006; Detzner, 2017). Although, I did not find studies evaluating the impact of these reforms on the police behavior and effectiveness in African context, studies in Western countries demonstrate the effectiveness of police reforms in reducing arrests and enhancing residents' perceptions of police conduct and efficiency (Peyton et al., 2019; Weisburd et al., 2022). Considering the police's daily interactions within their communities, beyond instances of misconduct, there is reason to believe that citizens globally are satisfied with the performance and behavior of their local police.

Riots, characterized by violent and disorganized protests, act as signals to citizens regarding the prevailing nature of policing. In such tumultuous contexts, the heightened demand for safety and police professionalism leads the public to perceive repressive or unwarranted police behavior as indicative of poor policing. This negative evaluation of police strategies adversely impacts public trust. Conversely, positive signals of effective policing following riots result in favorable ratings, subsequently increasing trust. Policing during riots presents a dual prospect—potentially posing a risk or offering an opportunity to foster a positive police-citizen relationship.

### **3.5.2 Robustness: Addressing potential threats for causal inference**

**Addressing potential institutional confounding effect.** This section addresses questions pertaining to the empirical settings, considering that the roots of riots involve police misconduct and violence within ethnic groups or political parties. The diverse origins of riots raise concerns about whether trust in the police is solely a police matter or a more extensive



narrative. If citizens are updating their beliefs about other institutions, it may indicate that some updated information, not directly related to the police or security sectors, could be triggered by the riots. This situation could complicate the differentiation of whether the change in trust in the police is related to individuals' updated beliefs about policing or reflects an indirect effect of unobserved behavioral or attitudinal changes regarding other institutions. Given that riots encompass various causes, this study checks the robustness of the findings across all possible institutions, both formal and informal.

Table 3.5: Robustness check: Evidence of police story.

	(1)	(2)	(3)	(4)	(5)
	President	Parliament	Electoral commission	Elected local government	Ruling Party
Temporally treated	-0.0018 (0.0352)	-0.0332 (0.0323)	-0.1274*** (0.0377)	0.0044 (0.0309)	-0.0379 (0.0361)
Spatially treated	-0.0530** (0.0231)	-0.0147 (0.0235)	-0.0388 (0.0239)	-0.0414* (0.0229)	-0.0689*** (0.0248)
Temporally treated × Spatially treated	0.0375 (0.0276)	-0.0368 (0.0285)	0.0275 (0.0293)	0.0210 (0.0285)	0.0395 (0.0301)
Controls	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	11604	11290	11176	11125	11410
$R^2$	0.082	0.057	0.064	0.059	0.075

Clustered standard errors (se) in parentheses. I clustered the se at the township level.

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

Notes: (1) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA.

Tables 3.5 and 3.6 show that only trust in the police and the army are statistically significant among people exposed to riots. The results reveal no empirical evidence of citizens changing their trust in other institutions. Hence, the positive change in people's trust in the police and the army reveals that people exposed to riots exhibit trust in the institutions

directly related to the riots. Indeed, previous studies show that institutions directly related to the occurrence of high-profile incidents are more likely to be affected by people’s behavioral or attitudinal change (Frye and Borisova, 2019).

There is a plausible rationale behind this phenomenon. It suggests that in a context of riots, regardless of their underlying causes, people are primarily concerned with the effectiveness of the police in reestablishing societal order fairly. Consequently, individuals’ attitudes toward the security sector or related agencies offer valuable insights, indicating that when exposed to riots or episodes of violence, citizens are primarily preoccupied with their safety (Downs and Roche, 1994). This heightened demand for safety prompts citizens to update their prior beliefs about the current state of policing.

Table 3.6: Robustness check: Evidence of police story.

	(1) Opposition party	(2) Police	(3) Army	(4) Courts of Law	(5) Traditional leaders	(6) Religious leaders
Temporally treated	0.0049 (0.0374)	-0.0987*** (0.0321)	-0.0626** (0.0297)	-0.0872*** (0.0317)	-0.0438 (0.0287)	0.0170 (0.0265)
Spatially treated	-0.0103 (0.0255)	-0.0613** (0.0245)	-0.0389* (0.0214)	-0.0196 (0.0237)	-0.0247 (0.0215)	-0.0057 (0.0195)
Temporally treated × Spatially treated	-0.0182 (0.0300)	0.0752*** (0.0292)	0.0539** (0.0261)	0.0039 (0.0286)	0.0010 (0.0272)	-0.0011 (0.0243)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11362	11698	11508	11381	9243	11640
$R^2$	0.039	0.117	0.058	0.043	0.105	0.076

Clustered standard errors (se) in parentheses. I clustered the se at the township level.

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

Note: The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA.

Although the security sector (police/army) benefits a trust creation among individuals exposed to riots (Table 3.6, columns 2 and 3), in this study, I focus on the police and the related mechanism through which people’s trust in the police might be created. This emphasis on the police stems from their pivotal role in peace-building, the establishment of state

legitimacy, and the cultivation of resilience among citizens (Rauch and Van der Spuy, 2006; Draca et al., 2011; Detzner, 2017). By concentrating on the police, I gain the opportunity to thoroughly examine the mechanisms that engender trust in police among people exposed to riots. Such contexts are marked by heightened citizen-police interactions, and a high demand of police service and expectation of police positive conduct and effectiveness. The nature of these interactions and expectations can either improve or tarnish the police image. As established by Panel (2012); Metcalfe and Pickett (2022), the public generally opposes repressive policing practices, underscoring the critical importance of policing in shaping public trust in a context marked by riots.

**Addressing other institutions performance confounding effect.** Another validity concern is whether trust in the police is influenced by citizens' evaluations of broader institutional and executive performance. This issue arises from the potential for unobserved factors tied to leadership assessments to impact trust in the police independently of policing behavior. To address this, I examine whether trust in the police can be linked to a more general positive appraisal of executive and institutional performance. If significant changes in these evaluations were detected, it might suggest that increased trust in the police is not solely due to policing but is influenced by a broader perception of improved institutional performance. However, results in Table 3.7, reveal no substantial shifts in leadership evaluations. Consequently, it is reasonable to conclude that changes in legal authorities' performance do not significantly confound trust in the police after riots. This reaffirms that the heightened trust in the police is primarily associated with specific aspects of policing in riotous context.

**Parallel trend and spatial spillovers.** To ensure the robustness of my main findings, I perform an additional robustness check focusing on the parallel trend assumption. This assumption is crucial for the validity of my empirical approach as it verifies that the treatment (riots) does not influence public trust in the police before the riots occur. Essentially, it

Table 3.7: Robustness check: Post-riot evaluation of institutions performance.

	(1)	(2)	(3)	(4)	(5)
	President	Member of Parliament	Elected local government	Traditional leaders	Mayor
Temporally treated	-0.0026 (0.0318)	-0.0742** (0.0373)	-0.0349 (0.0356)	-0.0474* (0.0273)	0.0192 (0.0374)
Spatially treated	-0.0771*** (0.0227)	-0.0556** (0.0259)	-0.0076 (0.0264)	-0.0660*** (0.0228)	0.0018 (0.0276)
Temporally treated × Spatially treated	0.0390 (0.0276)	0.0476 (0.0324)	-0.0151 (0.0335)	0.0349 (0.0281)	-0.0157 (0.0354)
Controls	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Observations	9595	9977	9743	8712	9126
$R^2$	0.168	0.091	0.069	0.084	0.056

Clustered standard errors (se) in parentheses. I clustered the se at the township level.

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

Note: The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA.

ensures that any observed effects are directly attributed to the riots and not to pre-existing differences between the treated and counterfactual groups. By examining data from one month before the first event date (Butts, 2021), I assess changes in public trust in the police month before the riots, relatively to the month the riots occurred. The results, presented in Table 7, Panel A, show non-statistically significant coefficients, supporting the validity of the parallel trend assumption. This implies no significant change in public trust in the police before the occurrence of riots, confirming the assumption's validity.

**Spatial spillover assumption.** In Table 3.8, Panel B, I examined a context where the treatment spread across borders. I established a set of concentric rings, each with a 50km radius. Prior studies suggest that creating such rings can eliminate bias and enhance the estimation of spillover effects (Butts, 2021). The findings indicate that citizens closer to a riots zone are more likely to exhibit an increase in public trust in the police compared to

Table 3.8: Parallel trend assumption and spatial spillover effects.

	(Panel A) Trust police		(Panel B) Trust Police
Spatially treated $\times$ month(-2)	-0.0044 (0.0548)	Temporally treated $\times$ Distance (0-50km)	0.5005*** (0.1155)
Spatially treated $\times$ month(-3)	-0.0441 (0.0281)	Temporally treated $\times$ Distance (50-100km)	0.4405*** (0.1150)
Spatially treated $\times$ month(-4)	0.0192 (0.0294)	Temporally treated $\times$ Distance (100-150km)	0.4804*** (0.1198)
Spatially treated $\times$ month(-5)	-0.0227 (0.0689)	Temporally treated $\times$ Distance (150-200km)	0.4109*** (0.1226)
Controls	Yes	Temporally treated $\times$ Distance (200-250km)	0.3751*** (0.1258)
Country fixed effect	Yes	Controls	Yes
Year fixed effect	Yes	Country fixed effect	Yes
Observation	12332	Year fixed effect	Yes
$R^2$	0.110	Observation	11698
Clustered standard errors (se) in parentheses. Clustered (se) at the township level. 1 month before, month (-1), is the reference time. * $p < 0.1$ , ** $p < 0.05$ , *** $p < 0.01$		Clustered standard errors (se) in parentheses. * $p < 0.1$ , ** $p < 0.05$ , *** $p < 0.01$	
		$R^2$	0.120

Notes: The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA, the existence of a post office in the PSU/EA.

their counterparts residing farther away. This result remains consistent across all the rings.

### 3.6 Heterogeneous effect: Ethnicity & social capital

Policing in riotous context should take into account the needs of different ethnic or racial groups as well as individuals with different socioeconomic outcomes. In this section, I highlight the effect of citizen's exposure to riots on their trust in the police conditional to their ethnicity and the level of social capital.

**Ethnicity and trust in the police.** Racial bias within the realm of policing significantly erodes the police-citizen relationship, as exemplified by studies in the United States. This bias manifests as a disproportionate use of force in predominantly Black neighborhoods (Hoekstra and Sloan, 2022) and disparities in the treatment of minority ethnic groups,

e.g. reduced likelihoods of receiving speeding ticket discounts compared to White drivers (Goncalves and Mello, 2021). Pickett et al. (2022) argues that while most White respondents express feelings of safety, a stark contrast is observed among Black respondents who live in constant fear of police violence for themselves and their families. Alarming, about half of Black respondents would rather face robbery or burglary than encounter the police without provocation. Racial discrimination deters trust in the police among the discriminated individuals.

The traditional procedural and distributive justice theories solely focused on the relationship between the citizen and the police and posit that fair treatment of citizens by the police shapes public trust in the police. Beyond traditional procedural and distributive justice theories focusing solely on the police-citizen relationship (Nix et al., 2015; Nivette et al., 2023), this research reveals that trust in the police is also shaped by how fairly the government treat citizens. Unfair treatment of citizens by the government can profoundly deter trust in the police, therefore jeopardizing state legitimacy. The objective is to discern how perceptions of unfair treatment in the community or country based on ethnicity can adversely affect police trust, particularly during periods necessitating the fostering of police-citizen cooperation.

Tables 3.9 and 3.10 present the change in trust in the subgroup of respondents exposed to riots, holding that their ethnic group is unfairly treated (Table 3.9) and the subgroup of those who feel fairly treated (Table 3.10). Ethnic discrimination is measured as follows: “How often, if ever, are ....s [R’s Ethnic Group] treated unfairly by the government?” I create a subgroup of respondents who answered “0 = Never”, and a subgroup for those who responded “1=Sometimes, 2=Often, 3=Always.”

There is no empirical evidence of change in trust in the police among individuals exposed to riots and who perceive their ethnic group as being unfairly treated. Table 3.9 shows that respondents feeling unfairly treated view the police behavior negatively, perceiving a 25.29 percentage-point increase in police corruption. On the other hand, they positively rate the police task performance, with a 25.32 percentage-point increase in the likelihood of receiving

Table 3.9: Trust in the police among ethnic groups feeling unfairly treated.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Trust Police	Police corruption	Bribe Police to get assis- tance	Bribe police to avoid problem	Better assis- tance from police	Fear crime	Fear po- litical vi- olence
Temporally treated	-0.1298** (0.0643)	-0.2186 (0.1383)	-0.0000 (0.0300)	-0.1515*** (0.0535)	0.0202 (0.1667)	0.0335 (0.0773)	0.0501 (0.0693)
Temporally treated	-0.0606 (0.0460)	-0.1212 (0.0886)	0.0060 (0.0178)	-0.0074 (0.0328)	-0.1446 (0.1151)	0.1262*** (0.0427)	0.0391 (0.0420)
Temporally treated × Spatially treated	0.0638 (0.0533)	0.2529** (0.1025)	-0.0166 (0.0216)	0.0097 (0.0357)	0.2532* (0.1303)	-0.1512*** (0.0524)	-0.0685 (0.0502)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3191	2993	3231	2861	3144	3231	3201
$R^2$	0.136	0.099	0.055	0.082	0.066	0.034	0.160

Clustered standard errors in parentheses (clustered at the township level)

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 3.10: Trust in the police among ethnic groups feeling fairly treated.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Trust Police	Police corruption	Bribe Police to get assis- tance	Bribe police to avoid problem	Better assis- tance from police	Fear crime	Fear po- litical vi- olence
Temporally treated	-0.0941*** (0.0351)	0.1137* (0.0612)	0.0014 (0.0075)	-0.0098 (0.0149)	-0.2302*** (0.0792)	0.0208 (0.0302)	0.0858** (0.0368)
Spatially treated	-0.0659** (0.0284)	0.1038* (0.0542)	0.0075 (0.0067)	-0.0104 (0.0117)	-0.1116* (0.0667)	0.0592*** (0.0219)	0.0640** (0.0265)
Temporally treated × Spatially treated	0.0825** (0.0340)	-0.1548** (0.0643)	-0.0096 (0.0090)	-0.0056 (0.0158)	0.0852 (0.0773)	-0.1087*** (0.0295)	-0.1302*** (0.0335)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7244	6697	7358	7044	7153	7361	7290
$R^2$	0.121	0.092	0.035	0.045	0.055	0.044	0.132

Clustered standard errors in parentheses (clustered at the township level)

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Notes: (1) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA.

assistance from the police and a 15.12 percentage-point reduction in fear of crime in the neighborhood. These findings underscore that police effectiveness alone is insufficient to engender significant positive changes in public trust in the police.

Table 3.10 presents findings pertaining to citizens who perceive themselves fairly treated by the government. The results indicate an increase in trust in the police among individuals exposed to riots. Riots provides a positive signal about policing, notably, with an 8.25-percentage-point rise in their trust levels. Hence, fair treatment of individuals by the government enables a positive perception of the police during riotous context. They perceive the police force as being 15.48 percentage points less corrupt, evaluate police task performance favorably (indicating a 10.87-percentage-point decrease in neighborhood crime fears), and experience a 13.02-percentage-point reduction in concerns regarding violence and intimidation during election campaigns.

These results align with the process-based model of regulation, emphasizing the significance of fairness in nurturing trust in police. In this study, I find that policing in riots context does not induce a change in trust in police among individuals who feel unfairly treated by their government, while there is no notable increase in trust among those who are not unfairly treated by their government.

This paper takes a novel approach compared to prior studies that predominantly focused on analyzing the process-based model or procedural justice with the police's actions shaping public trust in the police. Instead, it broadens the scope to encompass fairness in a broader societal context. The key contribution to the existing literature is the argument that equitable treatment of all ethnic groups should be an overarching objective, not exclusive to the police but extending to the government. This is advocated because sentiments of unfairness can detrimentally affect the police, particularly during periods of civil unrest, hindering their endeavors to foster trust with the communities they serve.



**Neighbourhood, social capital and trust in the police in riotous context.** The level of bonding in a neighborhood signal the level of public prior belief or trust regarding the police (Hawdon, 2008). Citizens residing in a high social capital neighborhood, a neighborhood where residents are more likely to like each other and interact, these groups are more likely to harbor prior positive trust in the police and be less skeptical of individuals beyond their group, while lower bonding levels are associated with suspicion of all, even within the groups. Hawdon (2008) contended that individuals in high social capital neighborhood tend to hold preexisting positive police trust and exhibit heightened sensitivity towards police fairness. Thus, police misconduct holds a pivotal influence over their trust in police. These theoretical tenets offer a plausible rationale for the post-riot surge in police trust.

The level of bonding or social capital is measured by the following question: “ For each of the following types of people, please tell me whether you would like having people from this group as neighbors, dislike it, or not care: People from other ethnic groups.” I assign a value of 1 for answers “1 =Strongly dislike, 2 =Somewhat dislike”, and the value of zero to “ 3=Would not care, 4=Somewhat like, 5=Strongly like.”

Tables 3.11 and 3.12 analyzed the post-riots trust in police among individuals who dislike their neighborhood from different ethnic groups (Table 3.11) and those who at least do not care about who they have as neighbors (Table 3.12). Table 3.11 illustrates that individuals exposed to riots, residing in neighborhoods with low bonding social capital, characterized by a reluctance to embrace neighborhoods from different ethnic backgrounds, exhibit no significant change in trust. This is despite a positive perception of police effectiveness, reflected in a 77.44 percentage point increase in reported assistance received from the police and a 22.49 percentage point decrease in fear of political violence. These findings indicate that individuals from low-bonding social capital neighborhoods appear less sensitive to police task performance. It is noteworthy that prior studies examining the relationship between social capital and trust in the police have identified a negative association between low bonding social capital and trust in police (MacDonald and Stokes, 2006; Hawdon, 2008;

Table 3.11: Trust in the police in low bonding neighborhood (Disliking other ethnic groups)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Trust Police	Police corruption	Bribe Police to get assis- tance	Bribe police to avoid problem	Better assis- tance from police	Fear crime	Fear po- litical vi- olence
Temporally treated	0.0176 (0.1218)	-0.4123 (0.2616)	-0.0194 (0.0486)	-0.0588 (0.0502)	-0.4280* (0.2315)	-0.0310 (0.1088)	0.2065 (0.1496)
Spatially treated	-0.0231 (0.0841)	0.0185 (0.1791)	0.0138 (0.0275)	0.0018 (0.0350)	-0.3595* (0.2146)	0.0510 (0.0781)	0.0630 (0.0885)
Temporally treated × Spatially treated	0.0457 (0.1022)	0.1092 (0.2113)	-0.0199 (0.0318)	-0.0304 (0.0484)	0.7744*** (0.2503)	-0.0919 (0.0948)	-0.2249** (0.1058)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	710	655	722	675	703	721	711
$R^2$	0.094	0.141	0.085	0.097	0.075	0.095	0.149

Clustered Standard errors in parentheses. Clustered at the township level

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 3.12: Trust in the police in high bonding neighborhood (Like their neighborhood)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Trust Police	Police corruption	Bribe Police to get assis- tance	Bribe police to avoid problem	Better assis- tance from police	Fear crime	Fear po- litical vi- olence
Temporally treated	-0.1050*** (0.0319)	0.0768 (0.0550)	0.0025 (0.0077)	-0.0383*** (0.0145)	-0.1829** (0.0726)	0.0131 (0.0278)	0.0919*** (0.0340)
Spatially treated	-0.0635** (0.0249)	0.0599 (0.0470)	0.0080 (0.0070)	-0.0068 (0.0127)	-0.1097* (0.0586)	0.0720*** (0.0208)	0.0595** (0.0250)
Temporally treated × Spatially treated	0.0788*** (0.0297)	-0.0638 (0.0547)	-0.0153* (0.0091)	-0.0070 (0.0152)	0.1185* (0.0674)	-0.1134*** (0.0270)	-0.1160*** (0.0306)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
country fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10942	10128	11094	10429	10784	11113	11005
$R^2$	0.122	0.100	0.040	0.055	0.051	0.039	0.145

Clustered Standard errors in parentheses. Clustered at the township level

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Notes: The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA.

Weitzer, 2015).

Conversely, Table 3.12 reveals that neighborhoods characterized by high bonding social capital exhibit a greater likelihood of trusting the police post-riot. This heightened trust appears to be driven by a favorable perception of the police behavior, indicated by a 1.53 percentage point reduction in the likelihood of resorting to bribery to secure police assistance. Moreover, there is a positive evaluation of police effectiveness, evident through an 11.85 percentage point increase in police assistance received, an 11.34 percentage point decrease in fear of neighborhood crime, and an 11.60 percentage point decrease in fear of political violence. Similar results are found for individuals who do not harbor aversions toward neighborhoods of different religious backgrounds (see Appendix, Table C.5 and Table C.6).

These findings underscore that in neighborhoods characterized by strong social bonds, the relationship between the police and community members can be enhanced, a trend not observed in neighborhoods with weaker bonds. The manner in which the police engage with residents in a specific area can significantly impact the trust people place in them (Pickett et al., 2022; Hoekstra and Sloan, 2022; Weisburd et al., 2022). While both types of neighborhoods receive positive ratings for police performance, trust in the police is evident only in neighborhoods where police behavior garners positive evaluations.

## 3.7 Conclusion

Prior research has predominantly focused on the impact of instances of police misconduct on public trust in the police. This study, however, shifts its focus to examine the effects of exposure to riots, irrespective of their origin, on public trust in the police. The research seeks to empirically establish that exposure to riots, regardless of their roots, significantly influences public trust in the police, with citizens' perceptions of police conduct and task performance serving as key drivers.

The primary finding of this study shows that exposure to riots drives an increase in public trust in the police. This positive shift is predominantly driven by two factors: a favorable public perception of police conduct and the effective evaluation of their task performance. Additionally, the research highlights the pivotal role of fairness in the treatment of ethnic groups and the presence of high social bonds within neighborhoods in fostering trust in the police.

This study makes several noteworthy contributions to existing literature. First, it diverges from previous research by investigating change in trust in the police among individuals exposed to riots, distinguishing it from studies solely focused on the impact of police misconduct on public trust in the police. Consequently, this work sheds light on the complexities of public trust in the police among residents or communities exposed to riots.

Second, this research extends its focus to high-profile social unrest, irrespective of its origins, highlighting the critical role of the police within communities and the corresponding perception of their actions. Following episodes of social unrest, police engagement, open dialogue, and community involvement (Peyton et al., 2019; Weisburd et al., 2022) become pivotal in rebuilding trust. Here, community policing practices that engage citizens in decision-making processes emerge as potent trust-building tools (Crowl, 2017).

Third, this study examines the nuanced contexts of ethnic discrimination and social capital, which exert influence on individuals' trust in the police. Beyond traditional procedural and distributive justice theories analyzing the fairness-related police behavior (Nix

et al., 2015; Nivette et al., 2023), this research reveals that trust in the police is shaped not only by the police's actions but also by broader societal actors. When citizens are or feel discriminated by their government, it can profoundly deter their trust in the police.

Lastly, this study broadens its scope to encompass the African context, which differs from regions like the USA (Weitzer, 2015) or Europe (Nägel and Lutter, 2023) where the police-citizen relationship is primarily shaped by racial dynamics. Here, the positive effect of fair treatment of ethnic groups underscores the detrimental consequences of discrimination on trust-building.

In this paper, I propose actionable policy directions for policing in the aftermath of riots, emphasizing accountability, transparency, and community-oriented approaches in policing.

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# Bibliography

# Appendix A

## Appendix Chapter 1

Figure A.1: Google research around the world concerning the Boston Marathon bombing on April 15, 2013.



Notes: Worldwide covering of the Boston Marathon bombing (Google trends-Blue area).  
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# Appendix B

## Appendix Chapter 2

Table B.1: Descriptive statistics by treatment status.

Variables	Pre conflict (Observations)	Mean (Pre)	Post conflict (Observations)	Mean (Post)	Mean Difference
Support for unlimited presidential term	10376	0.180	23130	0.240	-0.06***
Economic management	11235	2.140	22200	2.150	-0.0200
Jobs creation	11228	1.880	22675	1.890	-0.0100
Health services improvement	11448	2.430	22996	2.430	0.0100
Electoral violence prevention	10985	2.580	21205	2.520	0.06***
Community conflict reduction	10953	2.630	21545	2.590	0.04***
Countering violence from armed extremists	5037	2.650	8824	2.550	0.10***
Days	11602	-151.5	23623	264.2	-415.69***
Distance within 50km	11602	0.630	23703	0.570	0.06***
Age	11588	36.82	23604	36.60	0.220
Age squared	11588	1568	23604	1560	8.090
Gender	10952	0.500	23118	0.500	0
At least completed secondary education	11551	0.250	23541	0.320	-0.08***
Employment status	10374	0.360	21461	0.330	0.03***
Urban	10828	0.550	22951	0.560	-0.01*
Police station in the PSU/EA	11562	0.300	23405	0.330	-0.03***
Electricity grid in the PSU/EA	11602	0.500	23587	0.660	-0.16***

Notes: The number of countries is 30, with a total of 373 regions. Go back to Page 9

Table B.2: Descriptive statistics by regime type.

Variables	Democracy (1) (Observations)	Mean (1)	Authoritarianism (2) (Observations)	Mean (2)	Mean Difference
Support for unlimited presidential term	7972	0.280	25534	0.200	0.08***
Economic management	7620	2.340	25815	2.090	0.25***
Jobs creation	7733	1.950	26170	1.870	0.09***
Health services improvement	7826	2.490	26618	2.410	0.08***
Electoral violence prevention	7097	2.580	25093	2.530	0.04***
Community conflict reduction	7271	2.620	25227	2.600	0.0100
Countering violence from armed extremists	1568	2.190	12293	2.640	-0.44***
Days	8113	236.4	27112	94.67	141.70***
Post conflict	8137	0.960	27168	0.580	0.38***
Distance within 50km	8137	0.570	27168	0.590	-0.03***
Age	8108	38.10	27084	36.24	1.85***
Age squared	8108	1691	27084	1524	167.21***
Gender	8133	0.500	25937	0.500	0
At least completed secondary education	8071	0.380	27021	0.270	0.11***
Employment status	8111	0.450	23724	0.300	0.15***
Urban	8113	0.710	25666	0.510	0.20***
Police station in the PSU/EA	8085	0.330	26882	0.310	0.01**
Electricity grid in the PSU/EA	8117	0.830	27072	0.540	0.29***

Notes: The number of countries is 30, with a total of 373 regions.  
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Table B.3: Descriptive statistics by distance.

Variables	Distance outside 50km (1) (Observations)	Mean (1)	Distance within 50km (2) (Observations)	Mean (2)	Mean Difference
Support for unlimited presidential term	14103	0.240	19403	0.210	0.03***
Economic management	13613	2.220	19822	2.090	0.13***
Jobs creation	13887	1.940	20016	1.850	0.09***
Health services improvement	14225	2.480	20219	2.390	0.08***
Electoral violence prevention	13267	2.620	18923	2.480	0.14***
Community conflict reduction	13439	2.670	19059	2.560	0.11***
Countering violence from armed extremists	4598	2.670	9263	2.550	0.12***
Days	14490	148.3	20735	112.6	35.72***
Post conflict	14570	0.700	20735	0.650	0.05***
Age	14480	37.28	20712	36.24	1.04***
Age squared	14480	1619	20712	1523	96.34***
Gender	13831	0.500	20239	0.500	0
At least completed secondary education	14483	0.230	20609	0.350	-0.12***
Employment status	13678	0.310	18157	0.370	-0.06***
Urban	14326	0.550	19453	0.570	-0.02***
Police station in the PSU/EA	14404	0.280	20563	0.340	-0.06***
Electricity grid in the PSU/EA	14526	0.520	20663	0.670	-0.15***

: The number of countries is 30, with a total of 373 regions.  
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# Appendix C

## Appendix Chapter 3

Table C.1: Test for Random Attrition.

**Panel 1: Missing Response about trust in the police. Change in non-response using propensity matching score.**

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Trust	Unmatched	0.016	0.011	0.005	0.003	1.460
	ATT	0.017	0.011	0.005	0.008	0.640

**Panel 2: Missing Response about perceived police corruption. Change in non-response using propensity matching score.**

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Corruption	Unmatched	0.069	0.065	0.004	0.007	0.530
	ATT	0.071	0.063	0.008	0.017	0.440

**Panel 3: Missing Response about paying bribe to avoid problem with the Police. Change in non-response using propensity matching score.**

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Pay Bribe	Unmatched	0.004	0.004	0.000	0.002	0.220
	ATT	0.003	0.001	0.002	0.005	0.460

Psmatch2: Treatment assignment	Psmatch2: common support		
	Off Support	On Support	Total
Untreated	0	1,930	1,930
Treated	84	3,143	3,227
Total	84	5,073	5,157

Notes: (1) Matching on characteristics, including region. The variable trust in the police, perception of police corruption, and paying bribes to avoid problems with the police are coded 1 for non-response ("missing" or "refused") and 0 otherwise. There is no evidence of change in non-response before and after the riots. (2) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA, the existence of a post office in the PSU/EA. (3) The standard errors are clustered at the township level.  $*p < 0.1$ ,  $**p < 0.05$ ,  $***p < 0.01$ .

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Table C.2: Test for Random Attrition (binary regression).

Missing responses.	(1) Trust in the police	(2) Trust in the police	(3) Police corruption	(4) Police corruption	(5) Paying bribe to get assistance	(6) Paying bribe to get assistance	(7) Paying bribe to avoid problem	(8) Paying bribe to avoid problem
Age	0.0001 (0.0005)	0.0002 (0.0005)	0.0014 (0.0010)	0.0021** (0.0010)	0.0001 (0.0001)	0.0002 (0.0002)	0.0001 (0.0002)	0.0002 (0.0002)
Age squared	0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)
Gender (female)	0.0091*** (0.0024)	0.0092*** (0.0024)	0.0439*** (0.0047)	0.0435*** (0.0047)	-0.0007 (0.0007)	-0.0004 (0.0007)	-0.0005 (0.0009)	-0.0001 (0.0009)
At least secondary education	-0.0071*** (0.0025)	-0.0081*** (0.0026)	-0.0503*** (0.0057)	-0.0392*** (0.0060)	-0.0028*** (0.0009)	-0.0021** (0.0009)	-0.0017 (0.0013)	-0.0009 (0.0013)
Employment status	-0.0051** (0.0025)	-0.0067** (0.0027)	0.0011 (0.0059)	-0.0075 (0.0061)	-0.0007 (0.0010)	0.0003 (0.0010)	-0.0006 (0.0012)	0.0001 (0.0014)
Residing in urban area	0.0073*** (0.0025)	0.0019 (0.0027)	0.0231*** (0.0063)	0.0096 (0.0068)	0.0033*** (0.0011)	-0.0001 (0.0006)	0.0042*** (0.0014)	-0.0007 (0.0010)
Police station in the PSU/EA	-0.0001 (0.0028)	-0.0006 (0.0030)	-0.0018 (0.0081)	-0.0039 (0.0079)	0.0009 (0.0015)	0.0002 (0.0015)	0.0024 (0.0024)	0.0023 (0.0023)
Electricity grid in the PSU/EA	-0.0007 (0.0030)	0.0001 (0.0032)	0.0077 (0.0074)	-0.0153** (0.0073)	-0.0004 (0.0014)	0.0016 (0.0017)	0.0021 (0.0017)	0.0044** (0.0022)
Post office in the PSU/EA	-0.0004 (0.0034)	0.0015 (0.0035)	-0.0107 (0.0095)	-0.0197** (0.0097)	-0.0020 (0.0013)	-0.0000 (0.0012)	-0.0036* (0.0021)	-0.0009 (0.0018)
Country FE	No	Yes	No	Yes	No	Yes	No	Yes
Year FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	11907	11907	11907	11907	11907	11907	11206	11206
R <sup>2</sup>	0.005	0.013	0.021	0.056	0.002	0.028	0.002	0.026

Notes: The variable trust in the police, perception of police corruption, and paying bribes to avoid problems with the police are coded 1 for non-response ("missing" or "refused") and 0 otherwise.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

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Table C.3: Robustness check: Trust in the police among ethnic-centered people.

	Police behavior and effectiveness					
	(1)	(2)	(3)	(4)	(5)	(6)
	Trust in the police	Corruption: Police	Pay bribe to the police to get assistance	Better: Get assistance from the police	Fear crime in the neighborhood	Fear political violence
Post riots	-0.1072 (0.0727)	0.0193 (0.1567)	-0.0087 (0.0254)	-0.3348* (0.1848)	0.0522 (0.0874)	-0.1426* (0.0746)
Distance (50km)	-0.0463 (0.0608)	0.0277 (0.1307)	0.0097 (0.0188)	-0.3558** (0.1534)	0.0778 (0.0541)	0.0441 (0.0602)
Post riots X Distance	0.1351* (0.0712)	-0.0515 (0.1470)	-0.0179 (0.0231)	0.5162*** (0.1812)	-0.1517** (0.0692)	-0.1202* (0.0726)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1147	1053	1171	1124	1169	1158
R <sup>2</sup>	0.117	0.088	0.067	0.099	0.081	0.145

Notes: (1) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA. (2) The standard errors are clustered at the township level. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

Table C.4: Robustness check: Trust in the police among country-centered people.

	Police behavior and effectiveness					
	(1)	(2)	(3)	(4)	(5)	(6)
	Trust in the police	Corruption: Police	Pay bribe to the police to get assistance	Better: Get assistance from the police	Fear crime in the neighborhood	Fear political violence
Post riots	-0.0889*** (0.0343)	0.0355 (0.0605)	0.0043 (0.0081)	-0.1717** (0.0834)	0.0117 (0.0289)	0.1107*** (0.0343)
Distance (50km)	-0.0636** (0.0262)	0.0519 (0.0482)	0.0074 (0.0073)	-0.0805 (0.0618)	0.0705*** (0.0212)	0.0579** (0.0261)
Post riots X Distance	0.0659** (0.0314)	-0.0395 (0.0574)	-0.0130 (0.0095)	0.0988 (0.0719)	-0.1069*** (0.0280)	-0.1054*** (0.0319)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9106	8447	9245	9000	9251	9145
R <sup>2</sup>	0.129	0.097	0.042	0.053	0.036	0.134

Notes: (1) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA. (2) The standard errors are clustered at the township level. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

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Table C.5: Trust in the police in high bonding neighborhood (Disliking other religion)

	Police behavior and police effectiveness					
	(1)	(2)	(3)	(4)	(5)	(6)
	Trust in the police	Corruption: Police	Pay bribe to the police to get assistance	Better: Get assistance from the police	Fear crime in the neighborhood	Fear political violence
Post riots	0.0609 (0.1044)	-0.3343* (0.1730)	-0.0485* (0.0286)	-0.3521* (0.2114)	-0.0268 (0.0734)	0.2506*** (0.0945)
Distance (50km)	-0.0010 (0.0837)	-0.0531 (0.1820)	-0.0016 (0.0314)	-0.2794 (0.1969)	0.0864 (0.0707)	0.0862 (0.0816)
Post riots X Distance	0.0545 (0.0932)	0.1055 (0.1947)	0.0037 (0.0361)	0.4096* (0.2174)	-0.1074 (0.0787)	-0.2418*** (0.0910)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1141	1050	1153	1119	1152	1138
R <sup>2</sup>	0.158	0.115	0.040	0.081	0.083	0.150

Notes: (1) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA. (2) The standard errors are clustered at the township level. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

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Table C.6: Trust in the police in high bonding neighborhood (Not disliking other religion)

	Police behavior and police effectiveness					
	(1)	(2)	(3)	(4)	(5)	(6)
	Trust in the police	Corruption: Police	Pay bribe to the police to get assistance	Better: Get assistance from the police	Fear crime in the neighborhood	Fear political violence
Post riots	-0.1236*** (0.0316)	0.1147** (0.0571)	0.0093 (0.0078)	-0.1734** (0.0686)	0.0213 (0.0291)	0.0812** (0.0330)
Distance (50km)	-0.0716*** (0.0256)	0.0737 (0.0482)	0.0093 (0.0069)	-0.1084* (0.0592)	0.0727*** (0.0207)	0.0542** (0.0244)
Post riots X Distance	0.0839*** (0.0306)	-0.0716 (0.0563)	-0.0181** (0.0092)	0.1204* (0.0684)	-0.1150*** (0.0274)	-0.1028*** (0.0304)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10521	9745	10672	10377	10691	10587
R <sup>2</sup>	0.117	0.102	0.043	0.051	0.038	0.146

Notes: (1) The control variables comprise age, age squared, completion of at least secondary education, employment status, gender, residing in an urban area, the existence of a police station, the existence of an electricity grid in the PSU/EA the existence of a post office in the PSU/EA. (2) The standard errors are clustered at the township level. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

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