*Hundreds of people demonstrated on Thursday outside the Johannesburg High Court to protest the suspension of Zwelinzima Vavi, general secretary of the Congress of South African Trade Unions (COSATU). "We are here to give him our support. We shall protest until the court overturns his suspension," [protester Patrick Malume] said.[[1]](#footnote-1)*

*27 March 2014*

*Johannesburg, South Africa*

*A teenager was shot dead during a violent protest in a region of South Africa which has been rocked by days of rioting… "It was a protest action, there was a crowd or a mob, and somebody took out their firearm and shot at the young man and he died on the scene," North West police spokesperson Thulani Ngubane said.[[2]](#footnote-2)*

*10 April 2014*

*Christiana, South Africa*

Two protests in South Africa occurred within two weeks of each other, both relating to trade worker factionalization spurred by dissatisfaction with the current ruling party. The protest in Johannesburg was a peaceful demonstration outside the High Court, complete with flags and signs. The protest in Christiana was a riot, complete with firebombs, looting…and a death. What happened in Christiana that did not happen in Johannesburg to result in a casualty? I attempt to approach this question through a quantitative lens by analyzing social conflict events throughout the African continent.

1. Data and Research Questions

Social conflicts—defined to be conflict events including, but not limited to, protests, riots, strikes, inter-communal conflict, and government violence against civilians[[3]](#footnote-3)—are differentiated from full scale intra-state war and mobilized conflict, but this differentiation does not make social conflict events less ubiquitous, disruptive, or dangerous. First released in March 2011, the Social Conflict in Africa Database (SCAD) was prepared by Cullen Hendrix and Idean Salehyan for the program on Climate Change and African Political Stability (CCAPS) at the Robert S. Strauss Center for International Security and Law at the University of Texas at Austin. The SCAD provides data on 7957 African social conflict events occurring in 48 countries between 1990 and 2011. Secondary datasets are merged into the SCAD to add more information about country demographics; these datasets include the World Religions and National Material Capabilities (NMC) datasets from the Correlates of War Project and the national freedom scores from the Polity IV Project. All datasets used in this project are available for direct download from the websites listed at the end of this paper and in local cached form from the project’s GitHub account.

**FIGURE 1 GOES HERE. MAKE SURE TO DESCRIBE IT IN THE PREVIOUS PARAGRAPH.**

In this course, we reversed the ‘traditional’ scientific process in a way in that we started from data and then developed research questions. I started out the process with the general idea of investigating differences between social conflict events. After seeing my available data, I decided to focus on the following two main areas of inquiry and investigation:

1. What differentiates an episode of social conflict that results in deaths from an episode of social conflict that does not result in deaths?
2. Is there a way to predict the number of deaths that will result from an episode of social conflict?

2. Who Cares? Possible Impacts Of This Study

Burdened with colonization until the mid 20th Century followed by, in many cases, a transition to independence hijacked by dictatorial rule, African countries are still embroiled in a transition from colonial rule to true independent, democratic governance. As such, there is a relatively wide body of literature discussing African social conflict in the context of an overall process of political regime change; however, the body of literature on African conflict as a unique entity is almost nonexistent (Scherrer 4).

Nevertheless, there is a somewhat substantial theoretical and case study based literature about social conflict in general, not specifically relating to the African continent. Scholarship in this category does not agree on a concise set of factors resulting in the escalation of social conflict events. Some researchers such as peace scholar Christian Scherrer and anthropologist Jay O’Brian use ethnic or religious identity to explain differences in conflict severity, citing the claim, “Few of the nation-states created by Europe in Africa bore any relationship to any [natural ethnic or religious divides]” (O’Brian 63). On the contrary, geographer Adrian P. Wood argues, “Shortages of natural resources lead to competition which may result in conflict” (83). In yet another contrary argument, sociologist Ralf Dahrendorf identifies economic disparities across a country’s social classes as a potentially major factor, and economist Massimo De Angelis expounds on this idea by giving an example from the United States: “The Great Depression, with its historically high levels of unemployment, did not make the American working class more docile. On the contrary, it sparked open insurrection: ‘Don’t starve—fight!’ was one slogan” (Dahrendorf 52; De Angelis 51). As sociologist Nigel Fielding writes, conflicts can be attributed to any, some, or all of “class, ethnicity, gender and sexual politics, region, nation, employment status, age, and ideology” (5). There is no consensus on how to explain conflict.

Since the release of the SCAD dataset in 2011, a handful of quantitative studies specifically focusing on African conflicts have been published using the SCAD as a primary source. These quantitative studies, like the earlier-referenced literature, identify factors influencing conflict escalation ranging from climate change to food price spikes to the occurrence of elections (Devlin, Franck, & Hendrix; Smith; Salehyan & Linebarger). However, data on external variables such as weather patterns, food prices, and election schedules are not part of the SCAD, and a unifying theme amongst these studies is one of a lack of reproducibility. Most of the papers are published without code and, in many cases, without links to specific datasets used for analysis, making it impossible to further investigate their results in a study such as this. Therefore, a reproducibly transparent quantitative exploration of the factors that precede the escalation of African social conflict events would most likely be a welcome addition to the academic debate.

3. Data Cleaning & Manipulation

All conflicts in the SCAD dataset are included in this study, with the exception of 119 conflicts that do not start and end in the same calendar year. Such conflicts were excluded from the analysis due to the complexities of merging secondary data sources delineated by calendar year onto multiyear conflicts; multiyear conflicts represent under 1.5% of the entire dataset, so removing them from the study should have a somewhat minor effect on the analyses. The NMC and Polity IV datasets provide information on a country per year level of specification, and variables such as democracy scores, iron production, and total country population were directly merged into the SCAD with little manipulation. The World Religion dataset measures at five-year intervals for every country the number of people who subscribe to a specific religion. To simplify the analyses, I computed the dominant religion in every county per five years, forward filled the data to create country-year measurements, and merged onto SCAD. The rest of the variables were used with little manipulation, except for the creation of a death/no death indicator.

4. Methods & Results

The work described here approaches the two research questions sequentially, first conducting a broad descriptive analysis of a variety of factors that could potentially influence a conflict’s number of deaths. Then I proceed to the modeling phase of the project, breaking the modeling task into two subtasks: first I will attempt to model the death/no-death indicator variable, and then I will use the results of that previous modeling effort in an attempt to model the actual number of deaths. Before investigating any of the research questions, let’s first attempt to get a sense for the distribution of the number of deaths and associated conflict characteristics. **TABLE 1 and FIGURE 2 go here with accompanying text.**

*4.1 Differences between Death and No Death Conflicts*

Tables 2-3; Figures 3-6 go here with accompanying text.

*4.2 Modeling*

par describing the process. Use parametric techniques to investigate, verify robustness through other means. Split into two unique modeling tasks based on the results of the first research question.

4.2.1 Death/No Death Indicator

tables 4-5 go here

4.2.2 Absolute Number of Deaths

figure 7 goes here.

5. Discussion

Focus here on the variables picked out and the impact on the community. What will this study bring to the table?

6. Future Extensions and Final Conclusions

While the conclusions in this study show promise, more work needs to be done before I can confidently add these results to the academic literature surrounding social conflict in Africa. On one hand, future analyses should try to merge or generate more variables to better assess some of the existing hypotheses surrounding social conflict escalation: representations of ethnic groups within a country, weather patterns, election data, and historical food prices are some that come to mind. On the other hand, the actual statistical analyses conducted here—particularly concerning variable selection and model testing—are rough at best. I conducted analyses on this project before covering more advanced modeling techniques such as stepwise variable selection and an in-depth discussion of cross validation techniques. While the original project proposal was approved without the implementation of these techniques, it would be much better to re-run these analyses using a more organized variable selection process such as stepwise selection and a more accurate model assessment process such as cross-validation. Making such changes would allow us to have much more confidence in the usefulness and robustness of the results presented here.

Limitations withstanding, this analysis represents a useful reproducible quantitative analysis of African social conflict. In many ways, these conclusions support the variety of theoretical hypotheses surrounding conflict escalation: a combination of varied factors seems to impact the number of deaths that will result from an episode of social conflict. These specific conclusions can be verified and refined through the study modifications suggested earlier. Perhaps more important than the specific conclusions about the conflicts is the research process itself. In stark contrast to previous studies using the SCAD, this study has its entire research workflow—code, plots, datasets, documentation, etc.—available on GitHub for other students and researchers to explore and build upon. Such a transparent and reproducible workflow lays the groundwork for future work and is an important first step towards regularly using quantitative analyses to analyze sociopolitical issues such as social conflict in Africa.

**UN idea – stop future conflict before it escalates**

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1. http://www.worldbulletin.net/news/132179/hundreds-of-south-africans-protest-outside-johannesburg-court [↑](#footnote-ref-1)
2. http://www.globalpost.com/dispatch/news/afp/140410/teenager-shot-dead-during-safrica-riots [↑](#footnote-ref-2)
3. https://www.strausscenter.org/scad.html [↑](#footnote-ref-3)