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# Understanding the Patterns of Crime Reports in a Popular Bangladeshi Newspaper

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**Abstract**

Bangladesh, being a developing country with approximately 1252 people living in per square kilometer and many people living under poverty line, is understandably has a high crime rate. Corruption, political unrest, and misuse of law has also aided the increase of crime rate over the years. Despite this, Bangladeshi print media and paper journalism is well known for their liberal mentality and efficiency in reporting correct and truthful news. In this paper, we use crime reports of a popular newspaper to understand the patterns and frequencies of crimes in different regions of Bangladesh. Our analysis shows that, this newspaper is biased towards reporting crimes from specific regions while some regions are seriously neglected. Although region based bias is found, no biases towards reporting crimes of any specific types are found in our study.

**Author Keywords**

Crime Analysis; Bangladesh; Newspaper Reports; Visualization

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### Dataset Description

The dataset that we have used here, collected from Dhaka Tribune<sup>a</sup>, a national English daily newspaper published in Bangladesh, has 8,729 crime reports over the span of four years (2014 to 2017). According to our dataset, Dhaka Tribune has reported 3,238, 2,335, 1,744, and 1,412 Bangladeshi crime reports in the year of 2014, 2015, 2016, and 2017 respectively.

<sup>a</sup><https://www.dhakatribune.com/>

## Introduction

According to Bangladesh Police<sup>1</sup>, a total of 213,529 crimes were reported to them in the year of 2017. So, it is understandable that a large amount of reports in the daily newspapers in Bangladesh are crime reports. Prior research has been done on the impacts of newspaper crime reports on the newspaper's readers [4] [3]. As newspaper news are one of the ways to build public knowledge about crime and justice [5], it is imperative to study the patterns and frequencies of newspaper crime reports in a crime prone country like Bangladesh.

There has been a recent work that predicts the frequencies of different crimes in different regions by fitting a linear regression model on the dataset provided by Bangladesh Police<sup>1</sup> [2]. Outside of Bangladesh, [1] used crime datasets for two different cities of USA collected from government provided services to find the crime hotspots on those two cities. To the best of our knowledge, there has not been any research done on analyzing trends and patterns of crime reports in local newspapers in Bangladesh and that has motivated us to take on this project.

## Analysis and Discussion

Each news report in our dataset is categorized into one of the fifteen regions and into one of the fifteen crime types available in the Police dataset<sup>1</sup>. We maintained the same structure of the police dataset to run a fair comparison between our dataset and the police dataset which is presented later in this section. One of the authors was responsible for categorizing the reports to the appropriate regions and crime types. After that, another author was responsible for checking for any possible errors made by the first author while categorizing the reports. It has to be mentioned here

that, we checked for possible follow-ups in the reports and counted all the follow-ups with original report as one crime.

Figure 1 shows crime report statistics of Dhaka Tribune from year 2014 to 2015 using heat maps. For the purpose of brevity, we have only shown heat maps of two years. All the four heat maps (from year 2014 to year 2017) can be viewed here <http://mnhoque.com/p2.html>. We used d3<sup>2</sup> for the visualization purpose. In the heat maps, the horizontal line represents crime types and the vertical line represents different regions of Bangladesh. From the Figure 1a, we can see that DMP, CMP, Dhaka Range, Chittagong Range are the regions that has the highest number of crimes reported in 2014. Interestingly, this pattern is consistent in the following three years too. According to the heat maps, these four regions have higher crime rate than the other regions. But, does this mean that crime rate is high on these regions or it is just that Dhaka Tribune reports more crimes from these areas? To answer this question, we turn our attention to the Police crime statistics<sup>1</sup> and define a new measure named *repTcrime\_ratio* (Report to Crime Ratio). *repTcrime\_ratio* is defined as the ratio of the number of crimes reported in Dhaka Tribune to the number of crimes reported in the Police dataset in any particular category. Figure 2a shows the *repTcrime\_ratio* vs *Region* graph for the year 2014 to 2017. From the Figure 2a, it is clear that all the six metropolitan regions have a higher *repTcrime\_ratio* than the other nine regions. These metropolitan regions are the divisional districts of Bangladesh and they are considered to be the most important regions in Bangladesh. It shows that, Dhaka Tribune is biased towards reporting crimes from the metropolitan regions. For example, in 2014 out of 19,417 crimes reported in the DMP region in police dataset, 637 crimes were reported in Dhaka Tribune. Whereas, out of 17,187 crimes reported in the Rangpur region in police dataset,

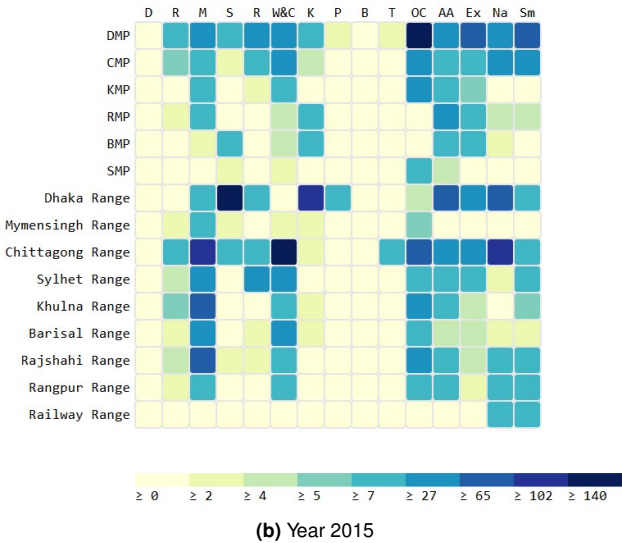
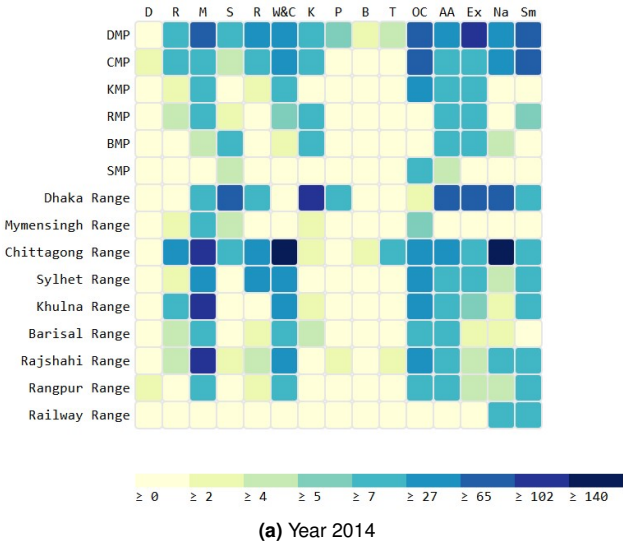
<sup>1</sup>[https://www.police.gov.bd/en/crime\\_statistic/year/2017](https://www.police.gov.bd/en/crime_statistic/year/2017)

<sup>2</sup><https://d3js.org/>

**Elaboration of terms used in Figure 1**

- DMP-Dhaka Metropolitan Police
- CMP-Chittagong Metropolitan Police
- KMP-Khulna Metropolitan Police
- RMP-Rajshahi Metropolitan Police
- BMP-Barisal Metropolitan Police
- SMP-Sylhet Metropolitan Police

Please see next page for other elaborations.



**Figure 1:** Heat maps of crime reports in Dhaka Tribune

only 106 crimes were reported in Dhaka Tribune. In 2015, Dhaka Tribune reported 245 crimes out of 4,862 crimes reported to police in the CMP region whereas for Barisal region this ratio is only 92 to 14,942.

Figure 1 represents another interesting pattern about the types of crime that are reported in Dhaka Tribune. Kidnaping, Police Assault, Burglary, and Theft are the least reported crime categories in Dhaka Tribune for the year 2014 and 2015. This pattern is also consistent in the year 2016 and 2017 although there seems to be reduced number of crime reports in other categories too in 2016. Similar to Figure 2a, Figure 2b represents *repTcrime\_ratio* vs *Crime Category* graph for the year 2014 to 2017. While there seems to be some peak values for the year 2017, no definitive pat-

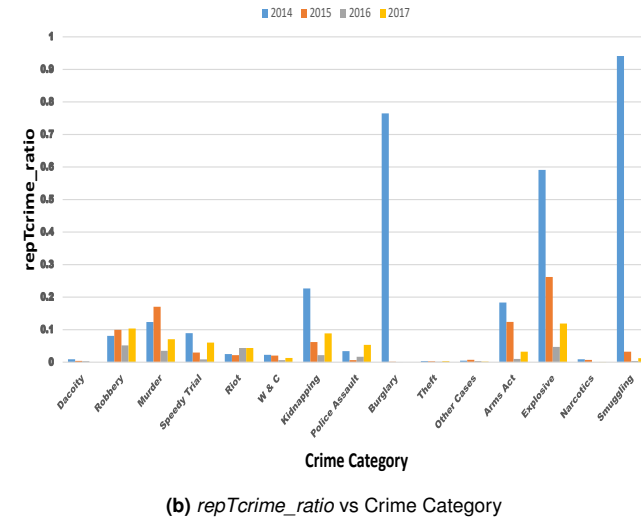
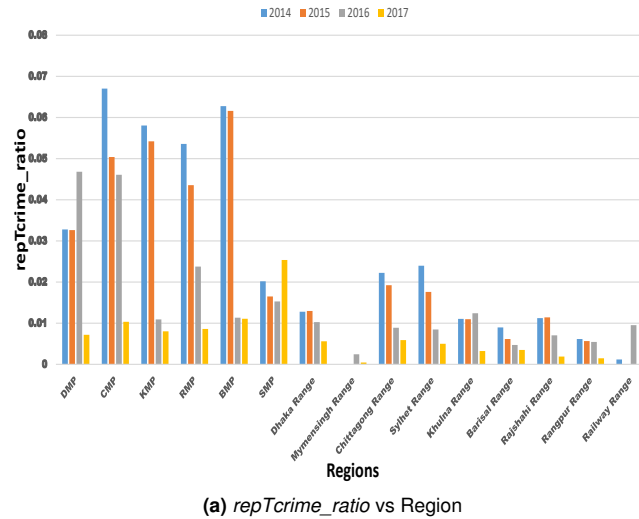
terns or biases towards any of the crime categories are found in Figure 2b.

**Conclusion**

We have collected all the crime reports that were published in Dhaka Tribune in the last four years to analyze the patterns involved on those reports thoroughly. We linked our dataset with the available police dataset to check whether crime reports in Dhaka Tribune are congruous with the reported police statistics. While our analysis has found some interesting patterns and possible bias towards crimes from specific locations, it is yet to be verified whether this patterns are consistent in other newspapers or not. We are currently in the process of collecting more crime reports from other popular newspapers. Unorganized reports in the

### Elaboration of terms used in Figure 1

- D-Dacoity
- R-Robbery
- M-Murder
- S-Speedy trial
- W&C-Women and child repression
- K-Kidnapping
- P-Police Assault
- B-Burglary
- T-Theft
- OC-Other case
- AA-Arms act
- Ex-Explosive
- Na-Narcotics
- Sm-Smuggling



**Figure 2:** Bar graphs of  $repTcrime\_ratio$  for different regions and crime categories

websites of the newspapers has made it a challenging task to compile such a big dataset. Currently, we are building a binary classifier to automatically detect whether a report is a crime report or not. We are also in the process of building a classifier to automatically categorize crime reports to the fifteen crime categories we have shown in our analysis.

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