

AN ALTERNATIVE METHOD TO ESTIMATE CONSUMER SATISFACTION USING SOCIAL MEDIA DATA: THE CASE OF THE DEPARTMENT OF FOREIGN AFFAIRS

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Consumer Satisfaction

Collecting feedback to meet consumers' expectations



Real time data

Alternative to traditional methods?



[GOVERNMENT SERVICE]

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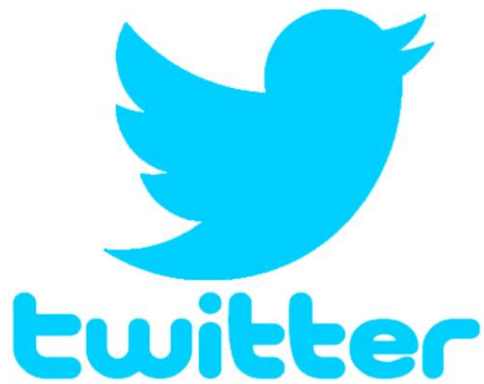
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Objective

develop an **alternative** methodology to determine the satisfaction of users




Twitter® Logo



Screenshot taken from the official Twitter account of DFA Philippines (@DFAPHL)


Significance

 Faster

 Cheaper

 Data availability

Scope and Limitations

 November 4, 2018 to February 4, 2019

 Casual nature of messages

 Bias on specific age groups

 Actual feelings of a person

 Dictionary-based

Methodology

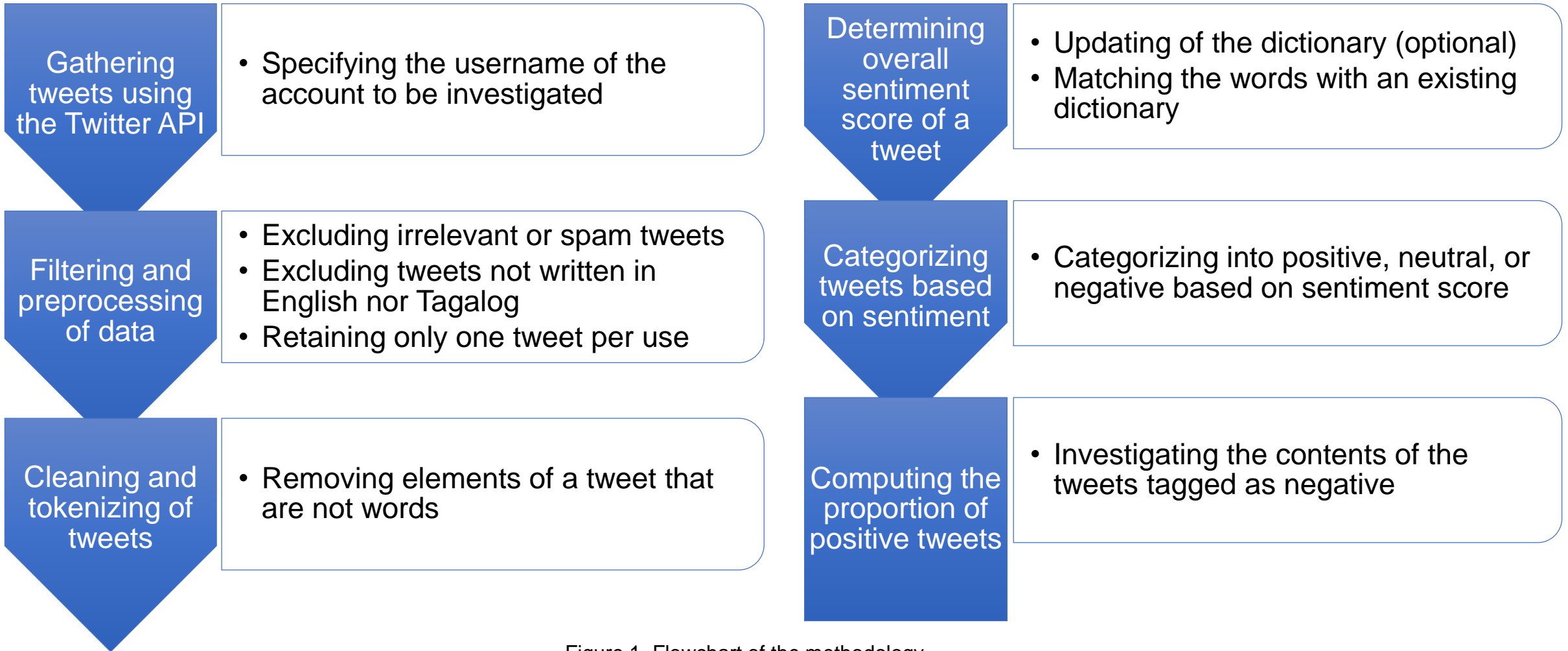
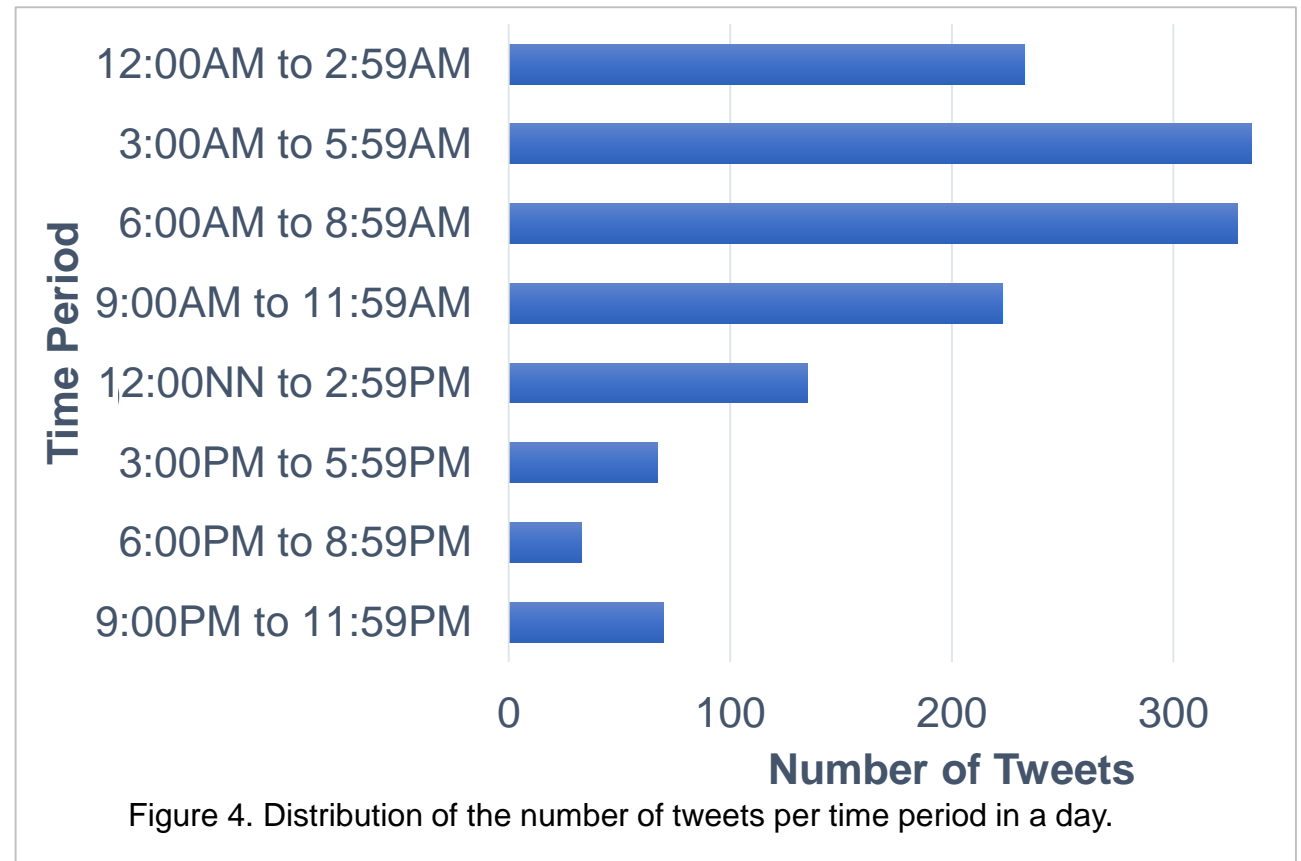
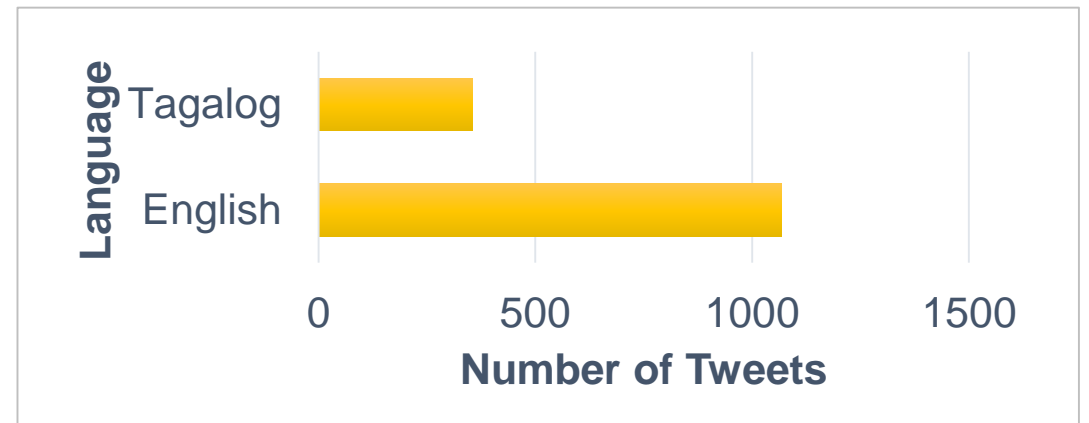
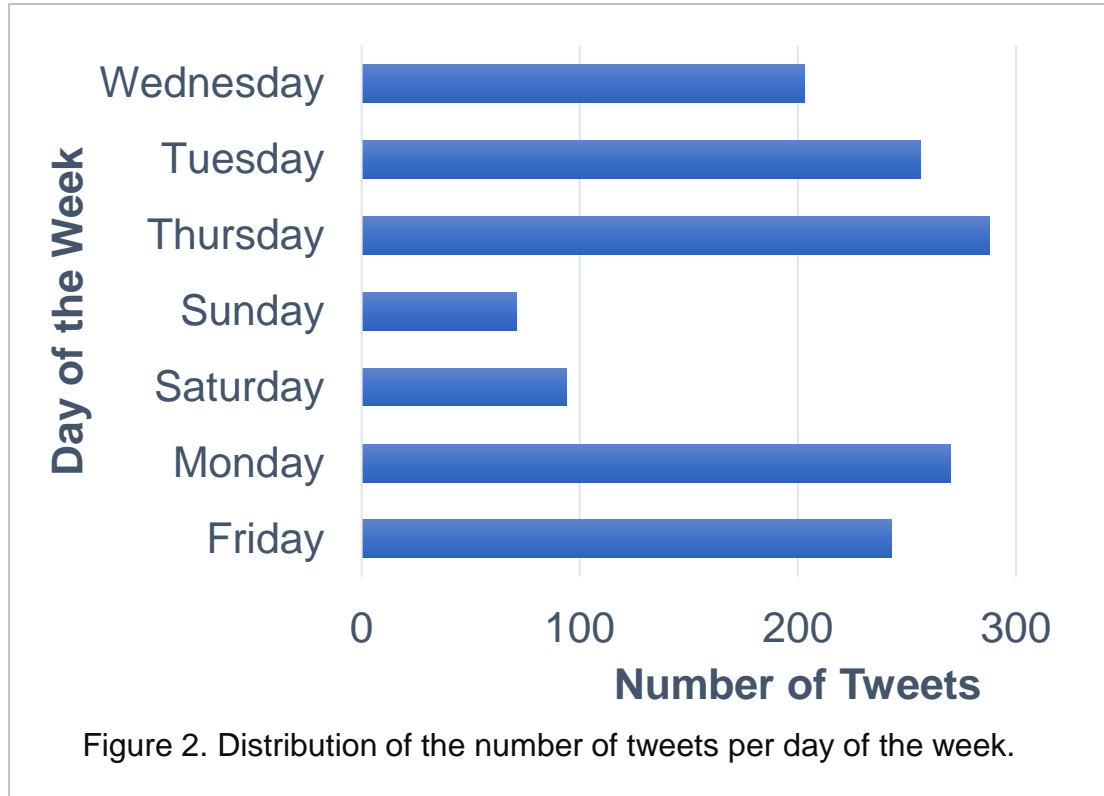
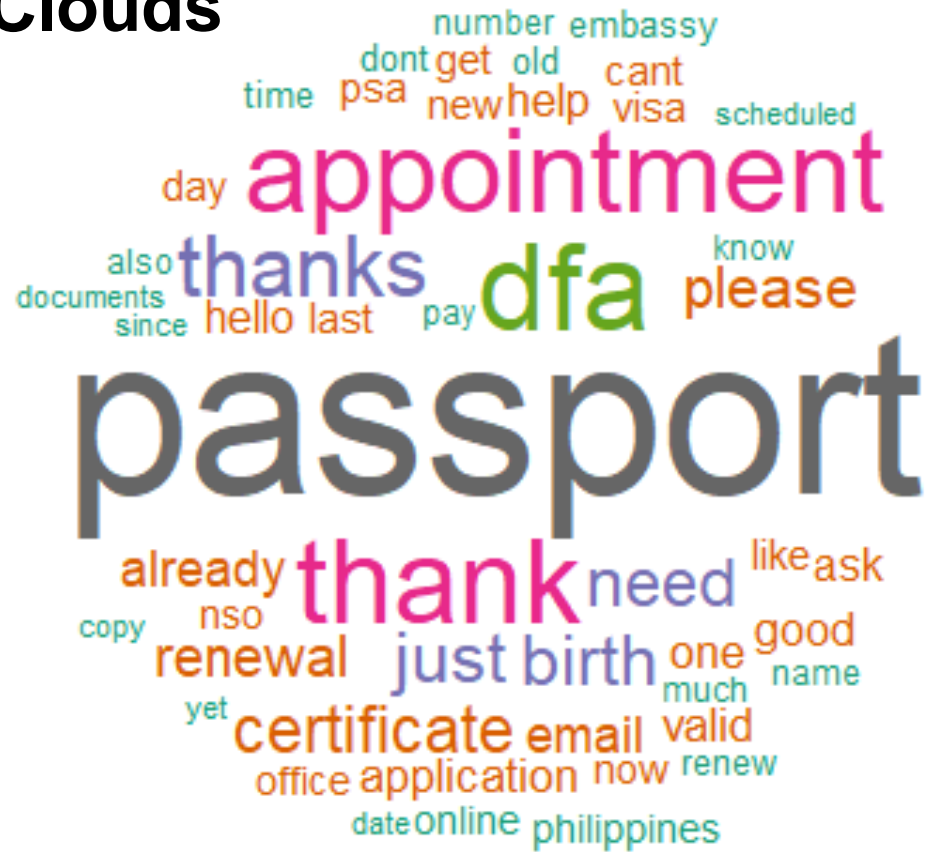


Figure 1. Flowchart of the methodology.

Tweet Characteristics



Word Clouds



English



Tagalog

Figure 5. Word cloud of the tweets by language.

Polarity of Words per Tweet

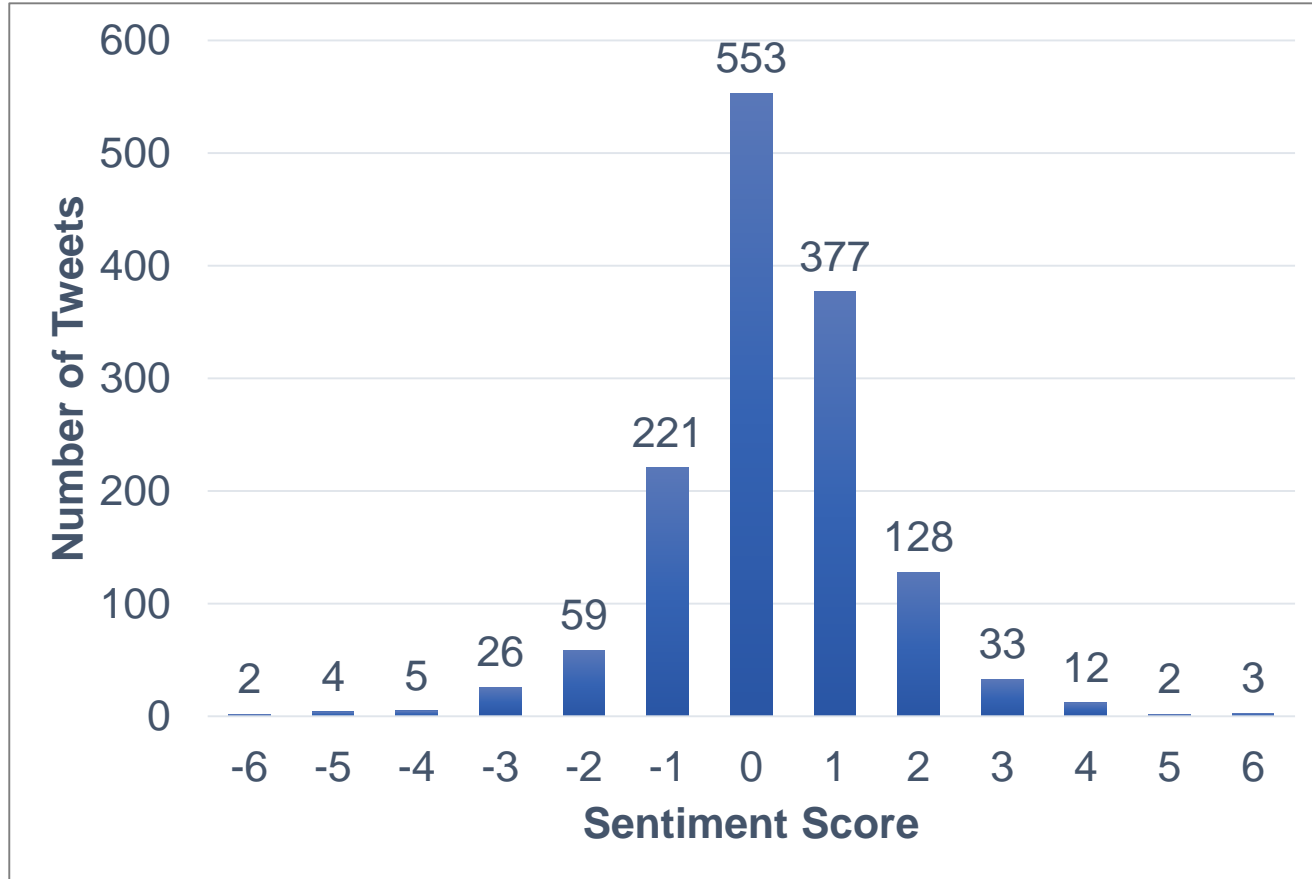


Figure 6. Distribution of the sentiment scores of the tweets.

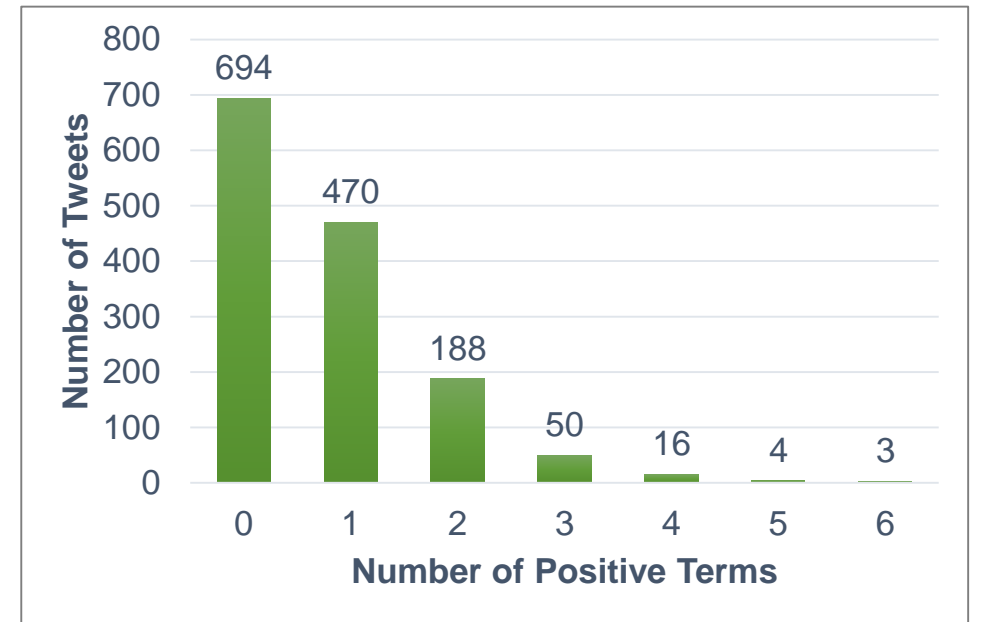


Figure 7. Distribution of the number of positive terms per tweet.

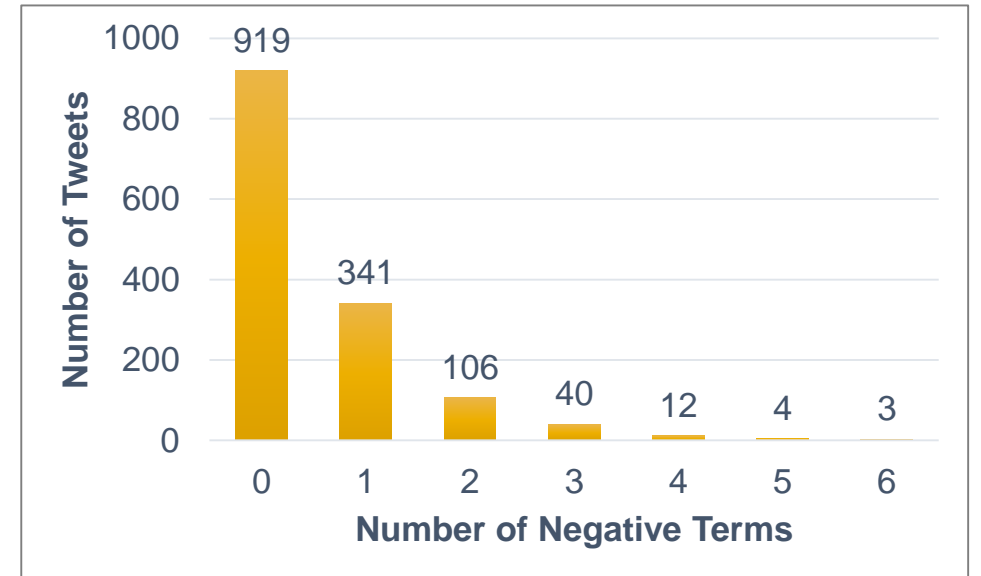


Figure 8. Distribution of the number of negative terms per tweet.

Associations with the Sentiment Score

Table 1. Measures of association of the sentiment scores with the characteristics of the tweets.

CHARACTERISTIC OF A TWEET	MEASURE USED	VALUE OF COEFFICIENT
Number of Words in a Tweet	Pearson's Correlation Coefficient	-0.1418
Language (English=0 ; Tagalog=1)	Point Biserial	-0.1258
AM/PM (AM=0 ; PM=1)	Point Biserial	-0.0522
Day of the Week	Eta Coefficient	0.0021

Sentiment Category

Table 2. Distribution of the sentiment categories of the tweets from unique users.

SENTIMENT CATEGORY	FREQ	%
Positive	304	38.92
Neutral	297	38.03
Negative	180	23.05
Total	781	100.00

Bootstrapping

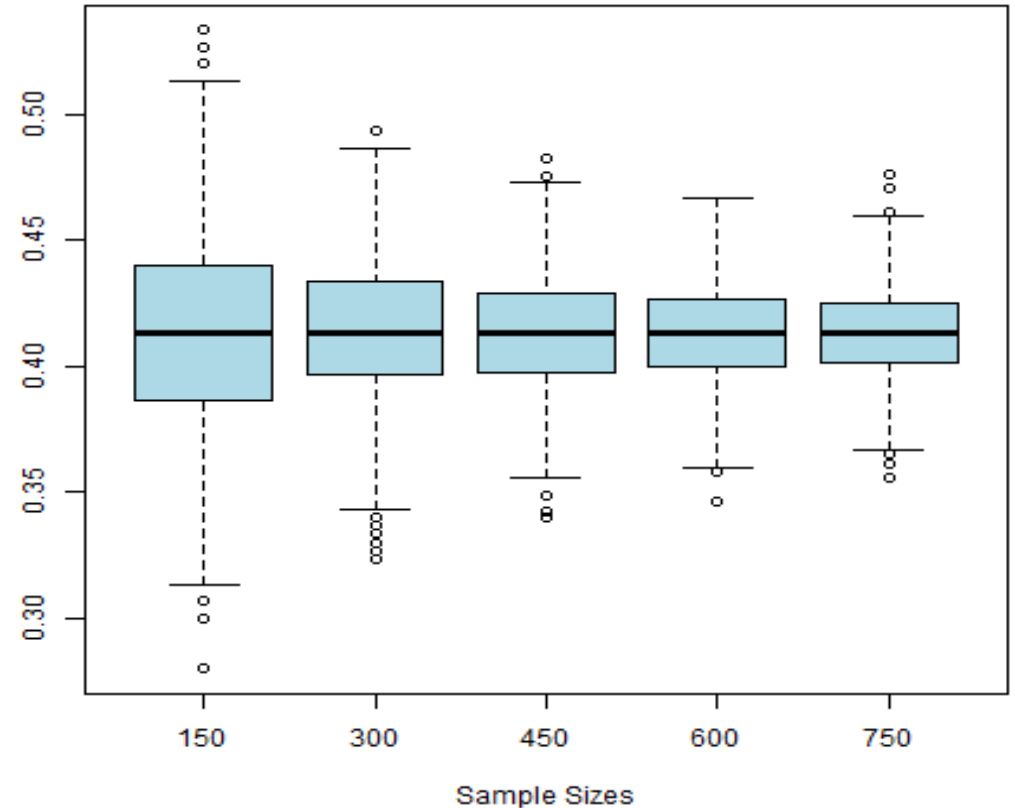


Figure 9. Distribution of the proportion of users with a positive satisfaction at different sample sizes with bootstrap resample of $B=1000$.

Summary of the Research

- ✓ Use of publicly posted Twitter data
- ✓ Tweet characteristics
- ✓ Sentiment scores of tweets
- ✓ Statistical properties of the estimates

Recommendations for Future Researches

- ✓ Other agencies
- ✓ A more comprehensive sentiment analysis
 - ✓ dictionary and word groupings
- ✓ Longer time period
- ✓ Wider scope

Thank you!