Influence of Political Ideology on English-Speaking Entrepreneurs' Twitter (X) Reaction to the Russo-Ukrainian Conflict

Dmitry Zinoviev[1], Yannick Thams[2], and Pelin Bicen[3]

[1]Department of Mathematics and Computer Science, Suffolk University
[2]Department of Management Programs, Florida Atlantic University
[3]Department of Marketing, Suffolk University

Abstract

This paper analyzes the impact of political ideology on the Twitter responses of English-speaking entrepreneurs to the Russo-Ukrainian conflict from January 14, 2022, to January 18, 2023. Using over 8 million tweets from entrepreneurs across seven countries, the study found a low engagement with the conflict, with only 0.48% of tweets directly related. It identified two ideological groups—liberals and conservatives—based on who the entrepreneurs followed on Twitter, revealing a general leftward bias among users. Sentiment analysis showed differing reactions between the two groups, with liberals showing a significant decrease in positive sentiment over time. The study also examined the most common terms used by each group, uncovering distinct narratives that reflect their ideological leanings toward the conflict and highlighting the complex interplay of politics, ideology, and social media discourse in shaping responses to international crises.

Keywords: Twitter; Ukraine; Russia; Political Ideology; Entrepreneurs

1 Data Set

This paper presents an exploratory analysis of how political ideology shapes the Twitter responses of English-speaking entrepreneurs to the Russo-Ukrainian conflict. The paper covers the first year of the conflict, from January 14, 2022, to January 18, 2023.

The research dataset comprises 8,265,326 tweets authored by 45,051 distinct entrepreneurs from six primarily English-speaking countries (the United Kingdom, Ireland, the United States, Canada, Australia, and New Zealand) and South Africa. The entrepreneurs were chosen randomly based on their active Twitter presence during the data collection phase and the inclusion of keywords "entrepreneur," "owner," "founder," "co-founder," "business owner," or "CEO" in their profile descriptions [2].

We identified tweets related to the Russo-Ukrainian conflict by scanning for specific keywords and hashtags indicative of significant events, military and political aspects of the conflict, and varying perspectives on leadership and international responses.

We further extracted all the posts related to the Russo-Ukrainian conflict based on the presence of specific keywords and hashtags. We searched for the following literal substrings in the bodies of the tweets: avdiivka, azovstaldefenders, bakhmut, bucha, crimea, dnipro, donbass, donetsk, irpin, kharkiv, kharkov, kherson, kiev, kreminna, kyiv, luhansk, natorussiawar, putinhitler, putinisawarcriminal, putinkiller, putinwarcriminal, russiaisaterroriststate, soledar, standwithrussia, stepove, stopputin, thewestunitedforrussia, ucrain (Spanish spelling), ucrania, ukrain, vuhledar, zaporizhia, zelensk-, буча (bucha), донбас (donbas), ірпінь (irpin), київ (kyiv), крим (crimea), украин- (ukrain-), україн- (ukrain-), харків (kharkiv), харьков (kharkov), and херсон (kherson). The search substrings include locations of significant events, terms related to the military and political aspects of the conflict, and expressions of opinion on the leadership involved and the international stance on the war.

The search was case-intensitive, so a tweet containing the popular hashtag “#slavaukraini” (“Glory to Ukraine”) would be included based on the substring “ukrain.” Overall, the selection related to the conflict has 39,810 tweets (0.48% of the original corpus) written by 8,271 users (18.3% of the original corpus). The disproportionately low portion of Ukraine-related tweets implies the general lack of interest of English-speaking authors in the conflict, which further decreased after the first two months of the war (Figure 1).

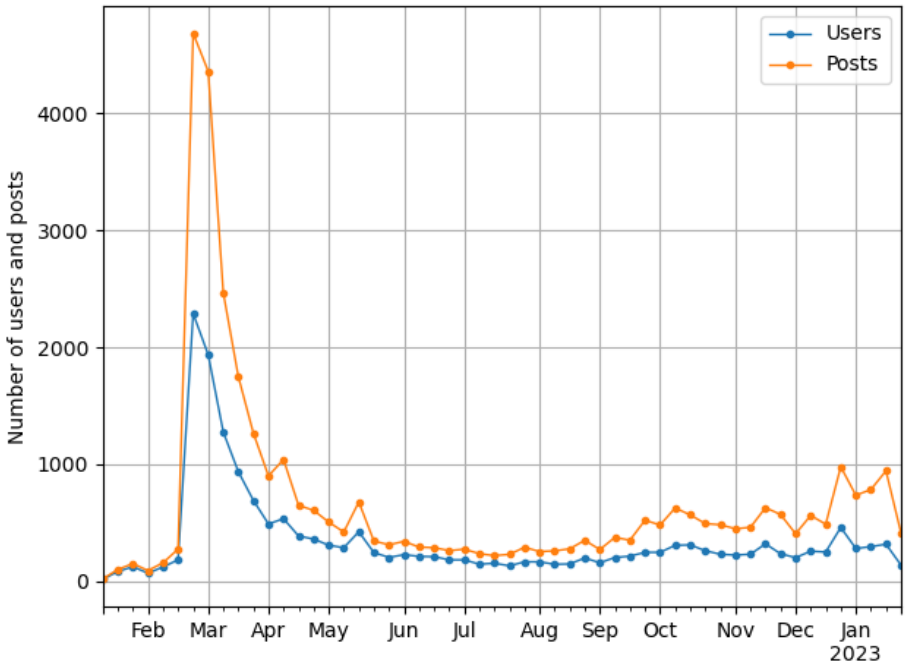

Figure 1: Number of users and posts on the Russo-Ukrainian conflict (per two weeks)

Our case-insensitive search aimed to capture a broad spectrum of discussions, incorporating tweets with hashtags like "#slavaukraini" (“Glory to Ukraine”) based on the presence of pertinent substrings. Of the vast original dataset, 39,810 tweets (0.48% of the original corpus) by

8,271 authors (18.3% of the original corpus) were specifically related to the conflict. The notably low percentage of Ukraine-related tweets suggests a general disinterest among English-speaking entrepreneurs in the conflict, which was particularly pronounced after the first two months (Figure 1).

We noticed the uneven geographical distribution of contributions to the discourse on the Russo-Ukrainian conflict. Entrepreneur participation rates varied significantly, from a low of 9.5% in South Africa to a high of 26.7% in Ireland, with the United States (17.6%), Australia (18.3%), New Zealand (20.5%), the United Kingdom (21.3%), and Canada (22.5%) showing varying levels of engagement. The subdued participation from U.S.-based users might reflect the prevailing North American tendency toward isolationism despite NATO affiliations.

2 Political Leaning Estimation

As a part of the exploratory study, we separated the selected users into two groups by their political leaning: "liberal" vs. "conservative" [4]. We built a subnetwork of the entrepreneurs' Twitter followee (those being followed). We assumed that if a user follows another user, they share some views with the followed and may lean politically in the same direction. We have opted to use the existing North American liberal–conservative scale as a political yardstick, acknowledging the potential for accusations of Americentrism while fully recognizing that the scale may not fully capture local nuances.

To understand the impact of political ideologies, we segmented our subjects into two ideological camps: "liberal" and "conservative" [4] (Figure 2). To analyze the political orientations of these entrepreneurs on Twitter, we examined whom they followed on the platform, assuming that the following behavior might indicate ideological affinity. We utilized the North American liberal-conservative dichotomy as a framework despite its potential for Americentric bias and its limited capacity to encapsulate all local political subtleties.

To calculate the leanings, we collected a list of up to 1,000 followees for each user in the original dataset. We constructed a bipartite, directed, unweighted network connecting entrepreneurs and their followees ("opinion leaders"), and projected the network onto the set of the followees. The resulting projected network has 2,840 nodes and 662,452 edges, is relatively sparse (density $d \approx 8.2\%$), and has high modularity ($m \approx 0.575$) and a crisp community structure. Upon applying the Louvain community detection algorithm [1], we identified two highly politically polarized communities: "liberal" (@barackobama, @joebiden, @potus, @kamalaharris, @aoc) and "conservative" (@elonmusk, @realdonaldtrump, @potus45, @joerogan, @snowden).

We calculated the political leaning as the normalized difference between the number of "conservative" and "liberal" opinion leaders each entrepreneur follows. The resulting variable has an almost normal distribution with a mean of -0.0013, confirming that Twitter was leaning left as a social media platform. We thus defined the users leaning to the left of the mean as "liberal" (23,035 users) and the others as "conservative" (12,913 users). The proportion of conservatively leaning distinct users decreased after a few weeks of the conflict.

We quantified each entrepreneur's political leaning through a normalized calculation of the difference in the number of "conservative" versus "liberal" opinion leaders they followed. The distribution of these leanings closely approximated a normal curve, with a mean leaning slightly to the left, confirming a general leftward bias on Twitter. Consequently, we classified users to the left

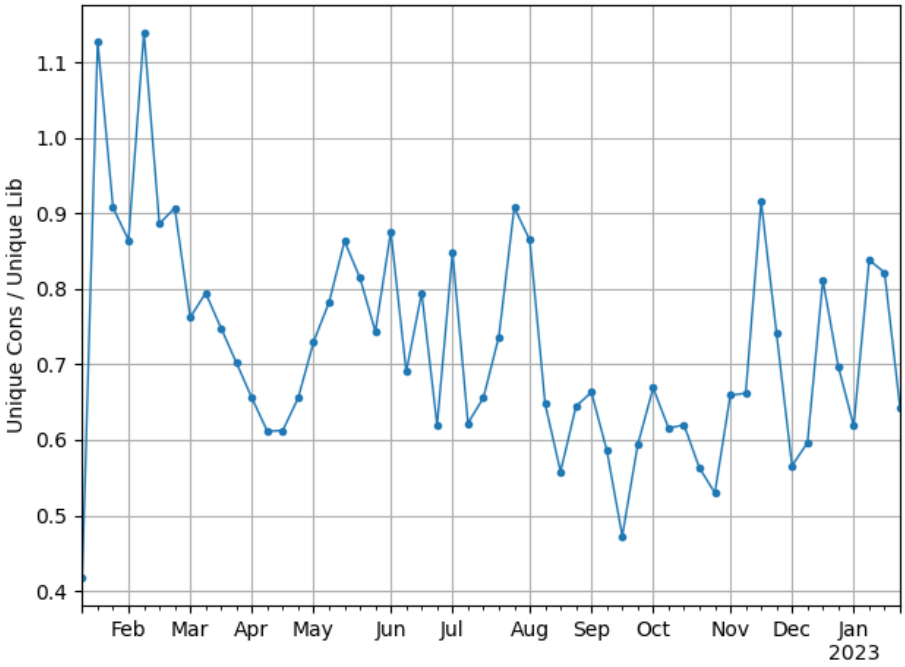

Figure 2: Ratio of conservative and liberal users over the first year of the conflict

Leaning	Conservative	Liberal
Verified	0.06	0.08
Followers Count	11989.2	5906.8
Following Count	2261.6	2193.6
Tweet Count	14271.4	16222.7
Listed Count	117.3	115.6

Table 1: Twitter demographics of the selected users, by political leaning.

of the mean as "liberals" (23,035 users) and those to the right as "conservatives" (12,913 users). The share of conservative-leaning users declined in the weeks following the onset of the conflict, highlighting the dynamic nature of political engagement among English-speaking entrepreneurs on Twitter in the context of international crises.

The Twitter demographics and performance characteristics of the selected users are shown in the Tables 1 and 2, respectively.

While Conservative users tend to have more followers and are listed slightly more often, Liberal users are more active in the number of tweets posted and have a higher verification rate. Both groups follow a similar number of accounts, suggesting comparable levels of engagement with the Twitter community.

The users with a Conservative political leaning have significantly higher engagement and visibility on Twitter across all metrics than those with a Liberal political leaning.

Leaning	Conservative	Liberal
Impression Count	1151.8	248.6
Like Count	142.9	29.9
Quote Count	3.0	0.6
Reply Count	13.9	2.1
Retweet Count	64.6	12.9

Table 2: Twitter performance of the selected users, by political leaning.

3 Sentiment Analysis

We applied the VADER sentiment analyzer [3] to estimate the effect of ideology on the transient sentiment level of the selected tweets. While generally stable, the compound sentiment score is statistically significantly different between the two groups of users, primarily because of the sharp decrease in the score for the liberal users at the end of the observation period (January 2023). The positive and negative "liberal" VADER scores are higher than the corresponding "conservative" scores, but only the positive scores are statistically significantly different (Figure 3).

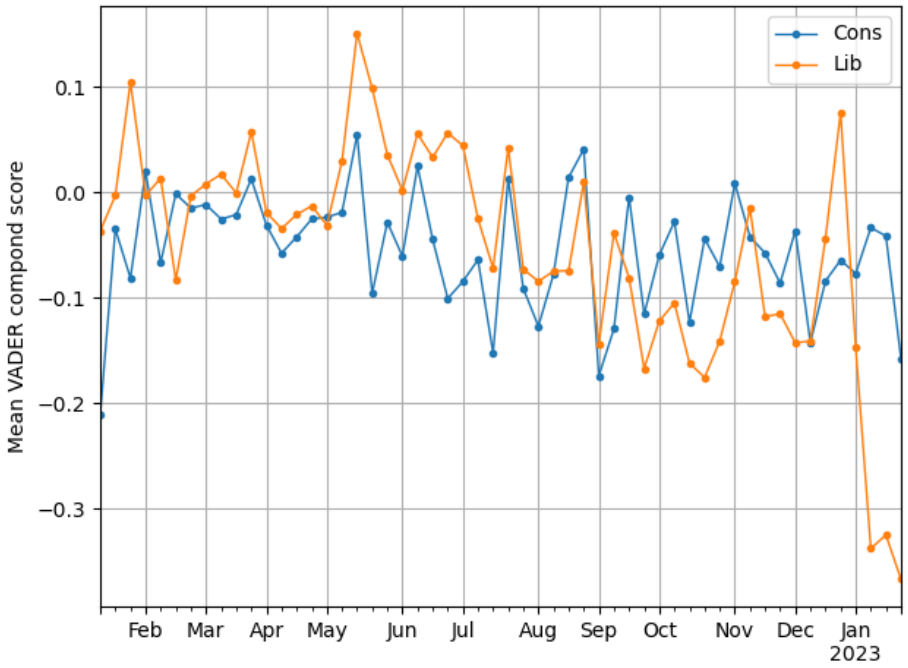

Figure 3: Compound VADER score for posts written by the liberal and conservative users

4 Lexicon Analysis

Lastly, we analyzed the lexicon employed by both liberal and conservative users and the entire group, utilizing the Natural Language Toolkit (NLTK) for text processing. The analysis involved

tokenizing tweets, converting hashtags to words, removing stopwords (including both standard English stopwords and an additional set of ≈80 terms deemed irrelevant for our analysis), and lemmatizing the remaining tokens. After converting these lemmatized tokens to lowercase and tallying them, we identified the 500 most frequently used lemmas by liberal and conservative authors, segmenting them into a common core of 372 lemmas (60%) and leaning-specific narratives with 128 unique lemmas for each group.

The common core encompasses a broad spectrum of themes and concepts related to the conflict, political and social discourse, humanitarian concerns, and global reactions (geopolitical and conflict-related terms, political and leadership references, social and humanitarian concerns, military and defense terms, economic and resource issues, social media and public discourse, emotional and moral responses, and international and regional dynamics). The "conservative" narrative concentrates on specific names and entities, financial and economic terms, tech and innovation focus, political and social issues, conflict and geopolitical terms, religious and ethical terms, and cultural terms. It promotes the hashtags "#StandWithRussia," "#TheWestUnitedForRussia," and "#IStandWithRussia." Finally, the "liberal" agenda is built around the specific terms related to geopolitics, pro-Ukrainian ideological and political expressions, religious and ethical terms, cultural and symbolic references, terms of violence and conflict, and concepts of justice and morality.

Together, the three lemma sets reveal a complex tapestry of themes ranging from geopolitical conflicts and economic impacts to ideological battles, religious sentiments, and the individual roles of actors in shaping the discourse, underscoring the multifaceted and profoundly interconnected nature of global discussions on the Russo-Ukrainian conflict and its broader implications.

5 Conclusion

Our findings highlight a general leftward bias among Twitter users, with significant differences between liberal and conservative entrepreneurs in their thematic focus and emotional tone. Liberals tend to emphasize geopolitical support for Ukraine, justice, and ethical considerations, while conservatives focus more on economic impacts, political issues, and support for Russia.

The study's sentiment analysis and keyword usage reveal the polarized nature of the discourse but also underscore the broader societal and ideological underpinnings influencing these narratives. This polarization manifests in using specific hashtags and prioritizing of different themes and narratives, reflecting deeper ideological divides.

The common core of the discourse encompasses a wide range of themes related to geopolitical conflicts, economic impacts, humanitarian concerns, and social issues. The shared narrative framework indicates the complex and interconnected nature of global discussions on the Russo-Ukrainian conflict.

References

[1] BLONDEL, V., GUILLAUME, J.-L., LAMBIOTTE, R., AND LEFEBVRE, E. Fast unfolding of communities in large networks. *J. of Statistical Mechanics: Theory and Experiment*, 10 (2008), 1000.

[2] HANIK, K., BENDELL, B., SULLIVAN, D., AND ZINOVIEV, D. How gender shapes role-based entrepreneurial self-presentation on Twitter. In preparation, 2023.

[3] HUTTO, C. J., AND GILBERT, E. VADER: A parsimonious rule-based model for sentiment analysis of social media text. *Proceedings of the International AAAI Conference on Web and Social Media* (5 2014).

[4] ZINOVIEV, D., SARKAR, A., AND BICEN, P. The "non-Musk" effect at X (Twitter). *Social Network Analysis and Mining 14* (July 2024), 131.