*Tweeting your way to Parliament: Quantitative Analysis of Twitter use in the 2022 Ontario Provincial Election*

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POL 4154

06/13/2022

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Introduction

Each month, more than fifteen million Canadians use Twitter – approximately 50% of the nation’s online population (Slater, 2018). Of this group, forty-four percent access the application multiple times a day. The ubiquity of the platform amongst voters is a driving factor in the increased attention from political scientists today. Additionally, as the network’s penetration into the daily lives of citizen increases, it’s role as a marketplace of ideas, and occasionally policy debates, has steadily increase1d over the past decade (Sahin, Johnson, & Korkut, 2021). Given the pervasiveness of the platform, understanding its role in electoral outcomes is of great importance. This research paper seeks to contribute to the grow literature examining the impacts of social media on elections. It does so by examining the impacts of Twitter usage on the 2022 Ontario Parliamentary elections. Two primary ordinary leased square(s) (OLS) regressions of the relationship between candidates’ Twitter habits and votes were conducted. The results of these regressions largely align with the academic literature, confirming a relationship between

Literature Review

There is a non-insignificant amount of scholarship examining the behaviour of political campaigns on Twitter. This can be broken-down into two distinct categories: volume studies and content studies. The former category examines the impact of both the presence of a candidate on the platform and the sum of their usage. DiGrazia, et. al., (2013) examine more than half a million tweets pertaining to the 2010 & 2012 Congressional elections in the United States, arguing political behiviour can be determined by social media use. Graham, Jackson, & Broersma (2014) conducted a comparative analysis of Twitter usage by British and Dutch parliamentarians, finding the latter as the more active userbase. This work highlights that of Kruikemeier (2014), who found that campaigns in 2010 Dutch national election that used the platform received more votes than campaigns that did not. Shifting from the impact of Twitter usage on electoral result to that of campaign contributions, Petrova, Sen, and Yildirim (2021) argue that opening a Twitter account can increase political contributions by up to two percent.

The latter category focuses on the intersection of electoral results and specific content of the trending topics, tweets, and interactions on the platform. Christensen (2013) examined the effects of Twitter usage by ‘Third parties’ in the 2012 U.S. presidential election and Fujiwara, Müller, & Schwarz (2022) examined partisanship on the platform through a textual analysis of tweets and trending topics during the 2016 and 2020 U.S. elections. López-Garcìa (2016) examined cross-party usage of twitter during the 2015 Spanish general election, highlighting the different ways each party used the platform. While the main political parties used Twitter to broadcast specific policy proposals, emerging parties more often used the platform to mobilize their supporters and to galvanize political change. This research supports the finding of Larsson and Kalsnes (2014), who examined Norwegian and Swedish politicians – highlighting the most active politician as “underdogs”, typically in the opposition and out of the “political limelight”.

There is reason to believe that a candidates social media behaviour can have an impact on their electoral performance. Bright et al. (2020) examined the “Broadcast Effects” of political candidates in European parliamentary elections. An integral aspect of local campaigning is the broadcasting of national message at the constituency level. Acting as the political conduit between a constituency’s local issues and the Party’s electoral platform can also contribute to a candidate’s press coverage (Green & Gerber, 2015). Additionally, a local campaign’s ability to successful broadcast the party’s message can “activate” core supporters (Bright et al., 2020, p. 990). Not only does this ensure these supporters indeed vote, but also could contribute to other campaign involvement (i.e., donations, door knocking, etc.). The introduction of new technology to political campaigns has proven beneficial for increasing broadcast effects. The most pervasive example of this is political campaign’s use of big data (Nickerson & Rogers, 2014). Data analysts build sophisticated predictive models that target specific voting demographics. This level of specification allows campaigns to better target specific voters to maximize their advertising dollars. As such, it is reasonable to believe that the use of twitter by local campaigns could contribute to broadcast effects.

Name recognition effects are another important aspect of local campaigns. Increasing a candidate’s name recognition among voters can enhance their political viability (Bright et al., 2020). A candidate can benefit from name recognition effects from numerous avenues (paid advertising, local television reporting, interviews, etc.), as such, they are difficult to directedly attribute to social media presence. However, research from Kobayashi & Ichifuji (2015) suggests that the nature of social media platforms – specifically Twitter – can intensify name recognition effects for political candidates. While potential voters are exposed to political messaging directly by the accounts of candidates, they can also be exposed to this messaging through their social network. When political messaging is mixed with or promoted by people the individuals actively decide to follow, the name recognition effect is amplified (Kobayashi & Ichifuji 2015). One form of this amplification takes the form of “retweets”, which allow other accounts to directly share the political messaging of campaigns to their own followers. Despite this, scholarship examining name recognition effects’ is mixed. Broockman & Green (2014) examined name recognition effects on political advertising on Facebook, finding that an increased volume of social media ads failed to increase name recognition among voters. However, social media activity (i.e., tweets or retweets) should not be conflated with political advertising on the same platform – as they are labelled as advertising and stand out from other posts on the platform.

Theory

*Name Recognition Effects*

As previous described, there is evidence to suggest that a political candidate’s Twitter presence can amplify name recognition effects. As such, it should be expected that an increase in tweets from the account of a political candidate is associated with an increase in name recognition effects. Moreover, as name recognition effects are more significant for non-incumbent candidates, it should be excepted that non-incumbent candidates will benefit more from any vote dividend that incumbents. To test these assumptions, the following two hypotheses are proposed:

**H1a:** Political candidates who send more **total tweets** during an election campaign will win more votes.

**H1b**: Incumbent candidates will receive less of a vote dividend from Twitter use than non-incumbents.

*Broadcast Effects*

The role of broadcast effects on local campaigns has been previously discussed. In the context of Twitter, broadcasting party messaging can take several forms, including promoting their parties’ policies, to denigrating the proposals of others (Bright et al., 2020, pp. 991-992). The purpose of this paper is not to determine the relative effectiveness of broadcasting party messaging. Rather, the purpose of this paper is to quantify the broadcast effect by examining the retweets of political candidates. As such, the following hypothesis has been proposed:

**H2**: Political candidates who send more **retweets** during an election campaign will win more votes.

Research Design

*Sample Collection & Data Handling*

This study examined the Twitter behaviour of candidates running for the Ontario Provincial Parliament during the 2022 Provincial election. Specifically, this study examines the electoral outcomes of fourteen (14) races MPP races. This sample was determined based on two primary criteria: polling average prior to the election and platform presence. The first criteria required elections where two or more candidates were within the margin of error from the *iPolitics* polling average one day prior to the election. The second aspect of the selection criteria is fairly simple, only races where the candidates have a twitter account were selected. Inclusion of the latter category required the exclusion of several races which met the first criteria, including Burlington & Eglington-Lawrence for example. The resulting sample can be found in Table 1.1. The number of races examined was limited by the collection method. Social media data was gathered using Twitter API v2 and the tweepy python module. This method only permits two million API requests per month. Collection of the tweets required several steps. Four helper functions were written to collect the independent variable from Twitter’s API. The first function accessed the account ID for every candidate’s individual Twitter account, which was stored in the *on\_poli* database. The account ID is a required parameter for any API request pertaining to specific account details (i.e., tweets, retweets, followers, etc.). The collection of the independent variable for H1 was done by the *get\_campaign\_tweet\_sum* function. For each candidate, the function would access the number of tweets for each day between May 1st to June 2nd. Once the tweets were counted, the sum would be added to the database for the corresponding candidate. Collection of the independent variable for H2 was very similar. The only difference with this function is API request: rather than searching for all tweets for each candidate, the *get\_campaign\_retweet\_sum* function only looked for retweets for each candidate. For two of the races, individual candidates owned multiple accounts: Patrice Barnes (PCPO, Ajax) and Michael Ford (PCPO, York South). Both candidates were members of public office prior to their MPP candidacy – School Board Trustee & City Councillor respectively. In these two instances, tweets from both accounts were counted towards the total number of for each respective candidate. The result of this was an increase in retweets for candidate Ford by two and an increase of three tweets for candidate Barnes.

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| *Table 1.1. Sample Summary* | | | | | |
| Riding | Candidates | Total Tweets | Total Retweets | Total Tweets (all) | Votes |
| Ajax | 3 | 88 | 14 | 102 | 37,688 |
| Brampton Centre | 3 | 92 | 22 | 114 | 24,466 |
| Brampton West | 3 | 91 | 113 | 204 | 30,316 |
| Hamilton East | 3 | 85 | 68 | 153 | 35,166 |
| Parry Sound-Muskoka | 3 | 141 | 152 | 293 | 44,522 |
| York South | 3 | 171 | 48 | 219 | 30,426 |
| Beaches-East York | 3 | 466 | 19 | 485 | 40,648 |
| Toronto Centre | 3 | 347 | 245 | 592 | 34,909 |
| Thunder Bay | 2 | 93 | 23 | 116 | 26,598 |
| Kingston | 3 | 204 | 45 | 249 | 48,738 |
| Ottawa-West | 3 | 333 | 225 | 558 | 41,906 |
| Glengarry-Prescott-Russell | 2 | 40 | 289 | 329 | 42,462 |
| Windsor-Tecumseh | 3 | 94 | 134 | 228 | 38,485 |
| Scarborough-Centre | 3 | 156 | 51 | 207 | 31,876 |
| Total | 40 | 2401 | 1448 | 3849 | 508,206 |

Results

Approximately four and a half million Ontarians cast a ballot in the 2022 provincial election. This studies’ sample represented approximately 12% of the provincial vote, or 508,206 (see Table 1.1). The mean number of votes per candidate was 11,416 with a standard deviation of 4320. The mean number of tweets was 60 and mean of retweets was 36. The standard deviation for these variables were 72.7 and 54.3 respectively – suggesting a significant level of variation within the sample. To determine if a relationship between Twitter use and vote outcomes could be found, a series of OLS regression models were conducted. Table 2.1 addresses the first set of hypotheses’: whether Name Recognition Effects are impacted by Twitter use, and whether non-incumbents are more benefited by this effect.

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| Table 2.1. *Summary Statistics* | | | | | |
| Variable | Observations | Mean | Standard Deviation | Minimum | Maximum |
| *Tweets* | 2,401 | 60 | 72 | 3 | 383 |
| *Retweets* | 1,448 | 36.2 | 54.3 | 0 | 249 |
| *Total Tweets* | 3,849 | 96.2 | 101.91 | 1 | 452 |

Model 1\* performed a multivariate OLS regression of the relationship between retweets, tweets, and votes; where votes were the dependant variable was tweets, and retweets respectively were the independent variables. For H1a, an increase in retweets by a factor on one increases the number of votes received by 33; for original tweets, the associated increase in votes was 5. When examining the second hypothesis (H1b), the difference in outcomes between incumbents and non-incumbents is highly evident. For retweets, the non-incumbents (H1b2 \*) received approximately 31 votes per retweet, whereas incumbents (H1b1 \*) vote increase was 76. When looking at original tweets, there was a modest benefit for non-incumbents (H1b2 \*) of 5 votes, while a one unit increase in original tweets for incumbents (H1b1 \*) corresponded with a loss of 46 votes. However, the relatively small sample size for both H1b1 \* & H1b1 \*\* should be noted.

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| Table 2.2. *Multivariate OLS Regression of the Relationship between Retweets, Tweets, and Votes & Bivariate Regression Between Total Tweets and Votes* | | | |
|  | H1a | H1b1 | H1b2 |
| Independent Variable | Votes | Votes | Votes |
|  | (*SE*) | (*SE*) | (*SE*) |
| *Retweets*\* | 33.53655 \*  (12.10621) \* | 76.16583 \*  (75.54132) \* | 30.99937 \* (12.52451) \* |
| *Tweets*\* | 5.145726 \*  (9.03593) \* | -46.70978 \*  (37.84759) \* | 8.75117 \*  (9.490406) \* |
| *Total Tweets*\*\* | 16.13396 \*\*  (6.359593) \*\* | -33.55036 \*\*  (44.47853) \*\* | 17.51415 \*\*  (6.47958) \*\* |
| R2 \* | 0.2051 \* | 0.5453 \* | 0.2252 \* |
| *n* \*  R2 \*\*  *n* \*\* | 40 \*  0.1448 \*\*  40 \*\* | 6 \*  0.1245 \*\*  6 \*\* | 34 \*  0.1859 \*\*  34 \*\* |
| **Notes**  **H1a:** Political candidates who send more **total tweets** during an election campaign will win more votes.  **H1b**: Incumbent candidates will receive less of a vote dividend from Twitter use than non-incumbents.  **H1b1** Incumbent  **H1b2** Non**-**Incumbent  \* Model 1  \*\* Model 2 | | | |

Model 2 \*\* performed a bivariate OLS regression of the relationship between total tweets (tweets + retweets) and votes; where votes were the dependant variable and total tweets were the independent variable. This model was used to test both H1a and H1b. While the previous model was beneficial to distinguish between tweets and retweets, Model 2 seeks to aggregate each candidate’s presence on the platform into a single variable. For H1a, a one unit increase in all tweets increased votes received by 16. When looking at the second hypothesis, the difference in votes received is similarly differentiated between incumbents and non-incumbents. For non-incumbents (H1b2 \*\*), a one unit increase in total tweets increased votes received by 17; while for incumbents (H1b1 \*\*), a one unit increase in total tweets resulted in a loss of 33 votes. The results of Model 2 \*\* seemingly confirm the academic censuses described in a previous section. When controlling for incumbency, the benefit yielded from increased Twitter activity only results in increased votes for non-incumbent candidates. As previously discussed, incumbents already benefit from popular name recognition as a result of their previous electoral performance. The same cannot said for non-incumbent candidates, who would enjoy far less name recognition than their incumbent opponent.

Table 2.3 outlines both Model 3 \*\*\* and Model 4 \*\*\*\*. Model 3 \*\*\* outlines a bivariate OLS regression of the relationship between retweets and votes received, regardless of incumbency. The result of this regression can be found in Table 2.3. For Conservative candidates (H21), a one unit increase in retweets yielded an approximate increase in votes by 30. Conservative candidates benefited the least from retweets out of the sample. ONDP candidates on the other hand, benefited the most from an increase in retweets – with a coefficient of 45 votes. Lastly, for Liberal candidates, a one unit increase in retweets resulted in an increase 37 votes.

Model 4 \*\*\*\* conducted a similar bivariate OLS regression as model 3 \*\*\*, however it controls for incumbency. As described previously, the impacts of broadcast effects are more pronounced in non-incumbent candidates – as such, model 4 \*\*\*\* seeks to address this issue. When controlling for incumbency, the votes yielded from a unit increase in retweets from PCPO candidates fell slightly to 27. The decline was far more drastic for ONDP candidates, for whom under Model 4 \*\*\*\* benefit the least from a one unit increase in retweets, with 19 votes. For non-incumbent liberal candidates, the benefit from a one unit increase in retweets corresponded in 27 more votes. The results of Model 4 \*\*\*\* seem to confirm the academic consensus regarding benefits of broadcast effects for non-incumbents.

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| Table 2.3. *Bivariate* *OLS Regression of the Relationship between Retweets & Votes* | | | |
|  | H21 | H22 | H23 |
| Independent Variable | Votes | Votes | Votes |
|  | (*SE*) | (*SE*) | (*SE*) |
| *Retweets* \*\*\* | 29.94381 \*\*\*  (16.31951) \*\*\* | 45.56364 \*\*\*  (94.22037) \*\*\* | 36.83663 \*\*\* (17.72527) \*\*\* |
| *Retweets* \*\*\*\* | 26.61886 \*\*\*\*  (17.12761) \*\*\*\* | 19.02234 \*\*\*\*  (7.051871) \*\*\*\* | 27.59679 \*\*\*\*  (23.63888) \*\*\*\* |
| R2 \*\*\* | 0.2191 \*\*\* | 0.2290 \*\*\* | 0.2819\*\*\* |
| *N* \*\*\*  R2 \*\*\*\* | 14 \*\*\*  0.1945 \*\*\*\* | 12 \*\*\*  0.4763 \*\*\*\* | 13\*\*\*  0.1315 \*\*\*\* |
| *N* \*\*\*\* | 12 \*\*\*\* | 10 \*\*\*\* | 11 \*\*\*\* |
| **Notes**  **H2**: Political candidates who send more **retweets** during an election campaign will win more votes.  **H21** Progressive Conservative Party of Ontario (PCPO)  **H22** Ontario New Democratic Party (ONDP)  **H23** Ontario Liberal Party (OLP)  \*\*\* Model 3  \*\*\*\* Model 4 | | | |

Discussion

The results outlined in the previous section demonstrate considerable evidence of a relationship between a political candidate’s activity on Twitter and their electoral performance. While the multivariate regression model for H1a \* demonstrates a relationship between Twitter presence and votes received the lack of control group limits the interpretations that can be made of the findings. Due to the ubiquity of Twitter, not enough candidates lacked a social media presence to allow for a control group to be established. As such, the finding relating to H1b are of increased importance. Both model 1 \* and model 2 \*\* highlight a disparity in the relationship between Twitter activity and votes received. This finding is consistent, if not slightly below, the consensus within the academic literature. For example, Bright et. al (2020) found that increasing tweets sent during a campaign by a factor of 10 increase the votes for non-incumbent candidates by 270 or approximately half a percentage point – while model 2 \*\* found this increase to be 170

votes (half a percentage point of the average vote from this studies’ sample is 182 votes).

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| Table 3.1. *Summary of 2018 & 2022 Ontario Provincial Electoral Results* | | | | |
| Party | 2018 Election | 2022 Election | Vote Change | Percentage Change |
| *PCPO* | 2,326,523 | 1,912,651 | -413,872 | -17.79% |
| *ONDP* | 1,929,966 | 1,111,318 | -818,648 | -42.42% |
| *OLP* | 1,214,346 | 1,117,051 | -7,295 | -0.65% |
| *Other* | 364,025 | 304,308 | -59,717 | -19.62% |
| Total | 5,744,860 | 4,445,328 | -1,299,532 | -22.62% |

Unlike the benefit of name recognition effects highlighted by H1a & H1b, the attributing of broadcast effects to Twitter behaviour is less conclusive. Model 3 \*\*\* attributes the greatest vote increase per one unit increase in retweets to the ONDP (45 votes), followed by the PCPO (30 votes) and OLP (36 votes). This finding conflicts with that of the academic literature, which postulates broadcast effects are more significant for parties with increased shares of popular support. The theory holds that if party X’s policies are more broadly supported by the electorate than that of party Y, broadcasting party Xs’ messaging will result in a larger vote divided for a candidate running under Party X, than would be expended for a candidate running under the banner of Party Y, broadcasting Party Ys’ less popular messaging. Using this logic, based off the raw popular vote, PCPO candidates should have benefited the most from broadcast messaging, followed by the Liberals and ONDP respectfully. This was not the case. However, when controlling for incumbency, as done in model 4 \*\*\*\*, the results better align with academic consensus.

Take for example Table 3.1, which highlights voter turnout and electoral support for each party during the 2018 and 2022 Ontario provincial election. Nearly 23% fewer voters turned out in 2022 than in 2018, which translates to nearly 1.3 million votes. Across the board, the three major parties all lost support from the previous election cycle. The Ontario NDP were the most disadvantaged by decreased turnout – shedding 42% of their popular support from the previous election. Notwithstanding the inability of their leader to win his own seat, the Ontario Liberal Party’s vote share is rather unchanged between 2018 and 2022. Using the framing provided by the analysis of model 4 \*\*\*\*, it could be argued that the benefit of broadcast messaging resulted in less of an overall decline in electoral support. OLP candidates yielded a vote dividend of 27 votes per retweet and lost less than a percent of popular support; PCPO candidates received a vote dividend of 26 votes per retweet and lost 17% of the popular vote; and ONDP candidate only yielded a vote dividend of 19 votes per retweet while losing more than 40% of their popular support. However, this interpretation is not without its flaws – specifically, the variation of observations in the sample should be noted. Nevertheless, adopting this analytical lens aligns the findings for H2 \*\*\*\* with the academic literature pertaining to broadcast effects.

Conclusion

To conclude, the cultural influence of social media on elections can no longer be ignored. Unlike most other methods of campaign message broadcasting, Twitter is essentially free. In theory, this makes it an excellent tool for small, grassroot campaigns who may lack the funding to traditional political advertising. The findings of this paper largely support the consensus amongst the academic literature pertaining to social media and electoral outcomes. Specifically, this paper confirms the impact of name recognition effects yielded from Twitter usages as found by Bright, et. al (2020); Broockman & Green (2014); and Kobayashi & Ichifuji (2015). In a First-Past-the-Post system, such as Ontario, small changes in vote share can lead to massive electoral changes. Therefore, the non-insignificant vote dividend as a result of name recognition effects is of particular interest on FPTP systems. The impact of broadcast effects was less pronounced in the sample. Nevertheless, as outlined in the previous section, the impact of broadcast effects was not non-existent. As the societal influence of Twitter increases, the finding of this paper will increase in importance with each passing election.

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