

## Ohio Election Analysis

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**What advice would you give each of the two candidates based on your analyses in tasks C, D, and E?**

**C.**

### Tim Ryan

Tim Ryan has a 0 lift in Education and in Ukraine, which could be improved by having some more tweets about this topic, as well as a 0-sentiment score. This means that no tweets in the last 7 days mentioned these two together. JD Vance on the other hand, had an extremely high lift with Education but a negative sentiment. This could be an opportunity for the Ryan campaign to carve out more of edge in the Senate Race. Tim Ryan has a strong relationship with the Opioid issue and has a very weak negative sentiment score of -.04. Ryan should really be having his campaign tweet more about what he's doing about the Opioid crisis so that he can start getting some positive sentiments. He already has an edge over Vance in this area, so if the campaign focused more about this, they could further separate their campaign from Vance. Tim Ryan and Ukraine wasn't mentioned at all in the tweets we scraped. It would be up to Tim Ryan's campaign if they want to talk about Ukraine; however, we think that he could talk to more national issues that would increase his sentiment among the issues that are in voters' minds and on the ballot. Considering Vance has talked about Ukraine, Ryan could also focus campaign efforts around this to further attack Vance. Tim Ryan has a very high relationship with Health; however, it's a negative sentiment score. The Ryan campaign should either stop talking about Health as an issue or focus on shifting public perception around this issue.

	Lift	Sentiment Score
Candidates & Issues		
Tim Ryan & Education	0.00	0.00
Tim Ryan & Opioid	48.16	-0.04
Tim Ryan & Ukraine	0.00	0.00
Tim Ryan & Health	202.95	-0.38
JD Vance & Education	11233.35	-0.28
JD Vance & Opioid	0.47	0.00
JD Vance & Ukraine	0.97	-0.36
JD Vance & Health	0.02	0.00

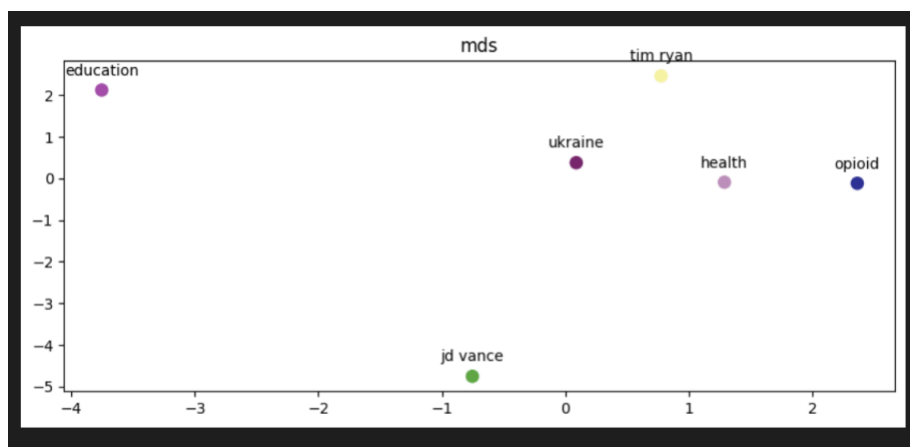
## JD Vance

JD Vance has a very strong relationship with education, but it's a negative sentiment showing that JD Vance has a strong stance that is perceived to be detrimental to education. This is also visible in the heatmap below:



This is corroborated by news headlines of JD Vance planning to cut the education budget, as well as many retweets of him planning on cutting education. Following education, the second closest association is with Ukraine, and the sentiment is also about as negative as with education. Health & opioid are good opportunities for JD Vance because while his association values with those issues may be significantly lower, Tim Ryan's sentiment scores are strongly negative with those issues. Emphasizing on the opioid crisis & healthcare issues could help JD Vance make inroads into the voters that have a strong negative opinion of Tim Ryan on these issues.

D.



The MDS plot seeks to show the similarities previously mentioned. Education has an extraordinarily high lift value associated JD Vance that causes the rest of the data points, issues and Tim Ryan, to be pushed closer together more than should be. To preserve descriptive power of the other points, we left this point, Education, "as-is" to reflect the massive amounts of traction JD Vance picked up regarding this issue (which we could see reflected in the negative sentiment between JD Vance and Education of 0.28). Education is the only issue associated with high lift for JD Vance while everything else has a lift value below one. For Tim Ryan, we see a similarity regarding health and opioids - however, both still are attached to negative sentiments. Ukraine has non-significant lift values with either candidate and attempts to sit between each candidate with equidistance. This is difficult because, as mentioned previously, Education has a powerful effect of warping the graphical depiction of these values.

## E.

### Using Lift:

Both Tim Ryan and JD Vance have similar lift ratios for the big cities in Ohio (3.12 vs 3.17, respectively). However, Tim Ryan was talked about significantly more in small towns than JD Vance (103.48 > 25.80, respectively). The Lift Analysis suggests that less people are talking about JD Vance in the smaller cities. With JD Vance being the Republican candidate, this comes as a shock because most small towns in Ohio are red on a political map. Our advice for the Vance campaign is to focus more campaign efforts on the small cities considering that small cities make up most of the voting districts.

### Using Sentiment:

The overall sentiment in the small towns is leaning negative (-.014 for JD and -0.04 for Tim Ryan). However, in big cities, Tim Ryan seems to have a significant advantage over JD Vance, as Ryan has a positive sentiment score of 0.07 compared to Vance's -0.10. Since Tim Ryan is the democratic candidate, the positive sentiment score in big cities represents the concept of big cities typically voting blue. We would suggest JD Vance's campaign should investigate why he is viewed negatively in the bigger cities, and then focus their campaign efforts on altering the public perception of his candidacy. Of course, this could just be due to his political party, as Vance is running as a Republican, who traditionally do not do very well in big cities nationwide.

From current location data, it seems that Tim Ryan is significantly ahead. Our advice for Ryan is to continue what is he doing. However, for Vance, he needs to refocus his campaign efforts towards small towns in Ohio to gain more support from the voting districts that have more significant impact on the elections.

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