Changes in Online Political Advertising

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New College of Florida
IDC 5131: Distributed Computing

About the Data

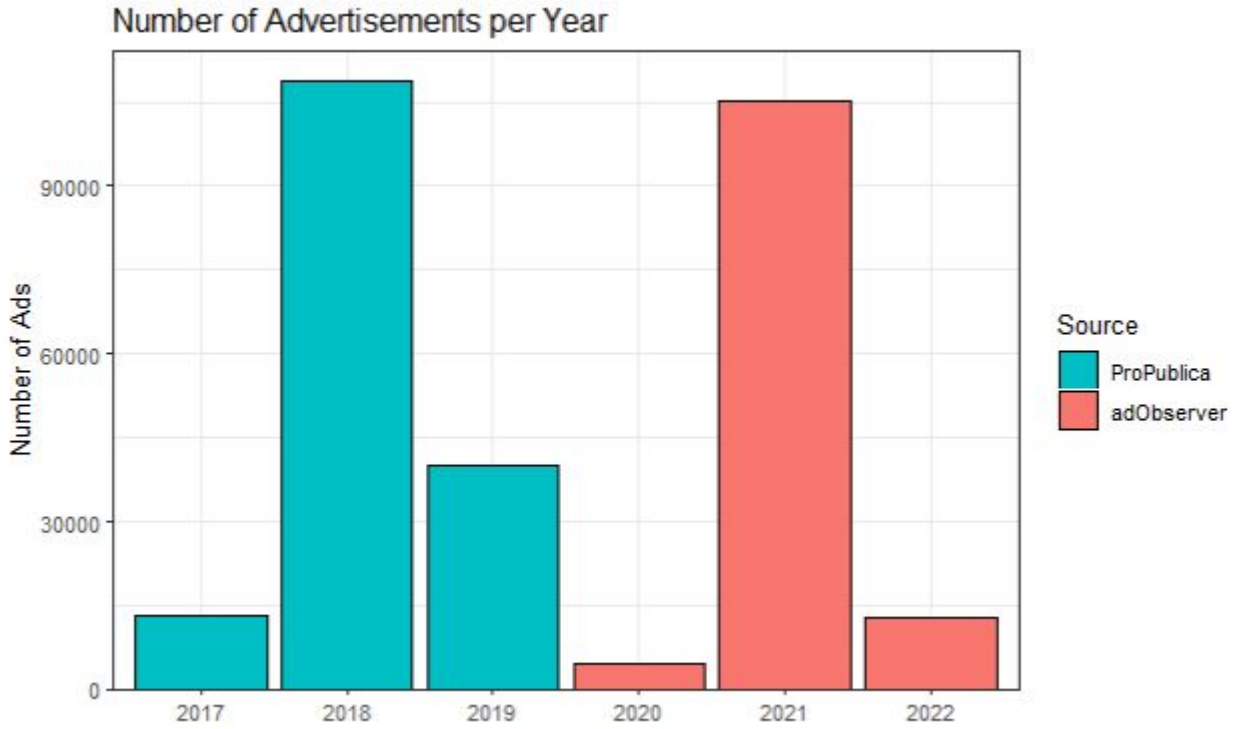
Two Datasets: ProPublica and Ad Observer

- ProPublica collected ad data from mid-2017 to mid-2019.
- NYU's Ad Observer collected data from December 2020 to February 2022, with a gap between March 2021 to July 2021.
- Both tools rely on browser extensions installed by volunteers to gather data.

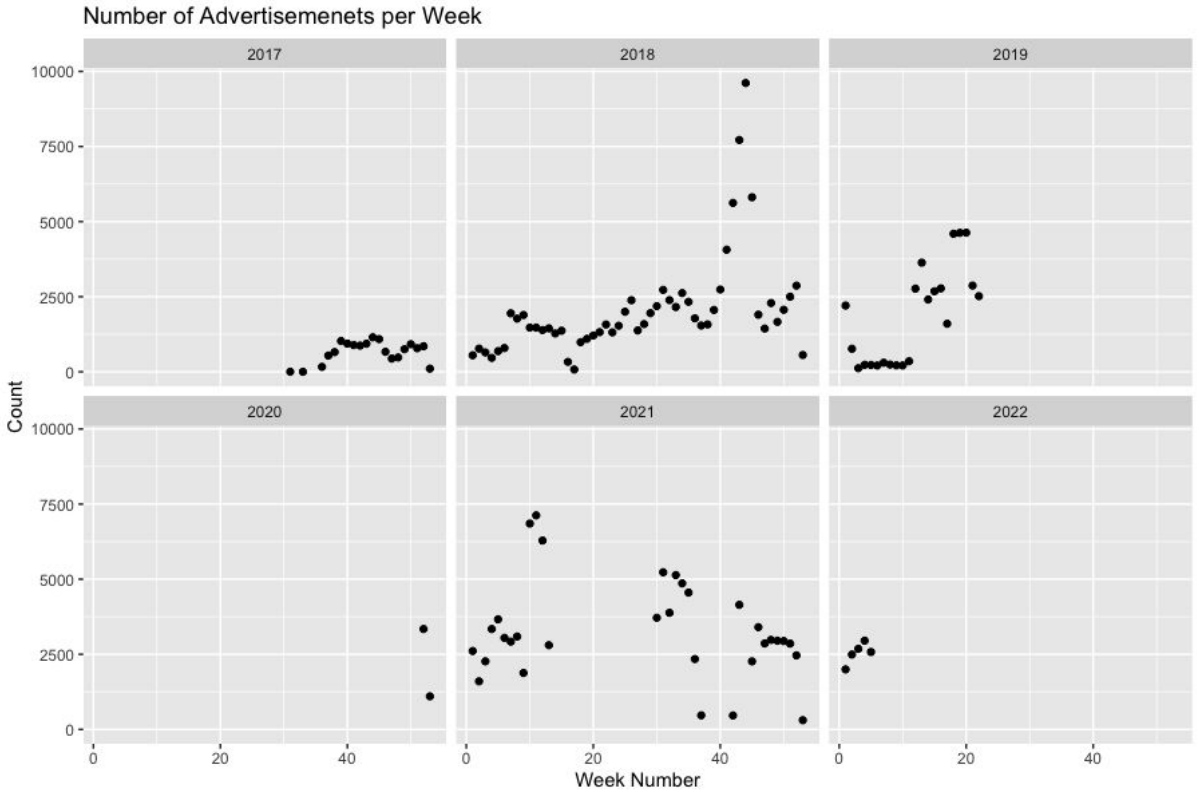
Are there any trends observed in these online political advertisements?

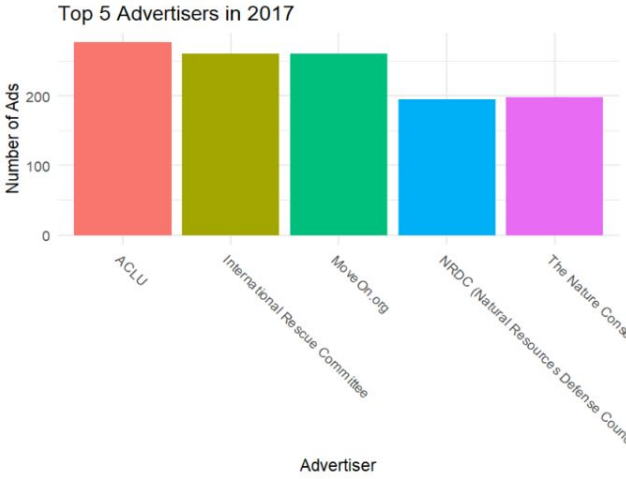
Analysis

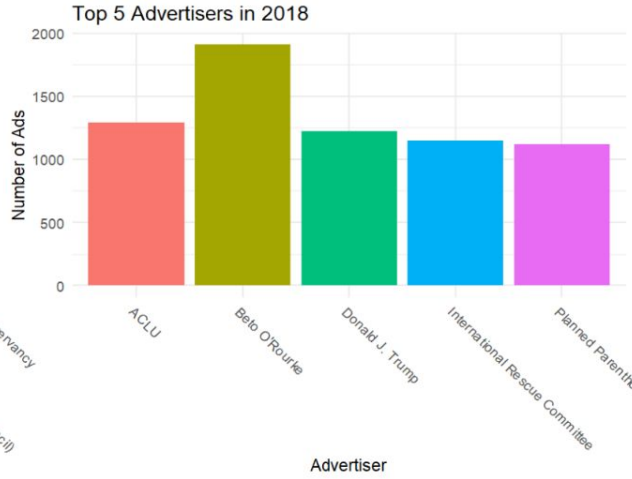
Frequency of Advertisements

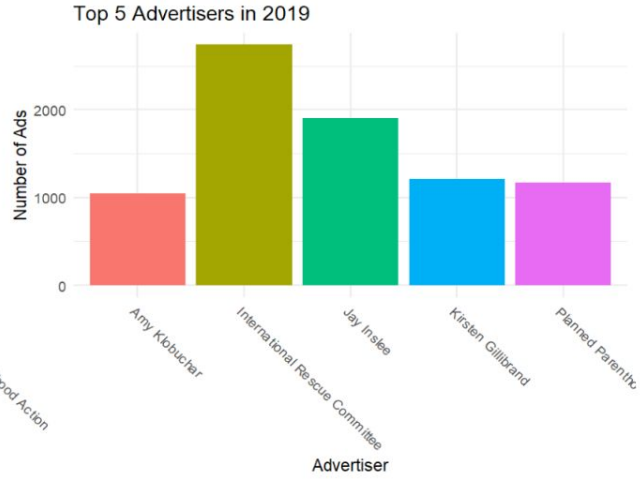


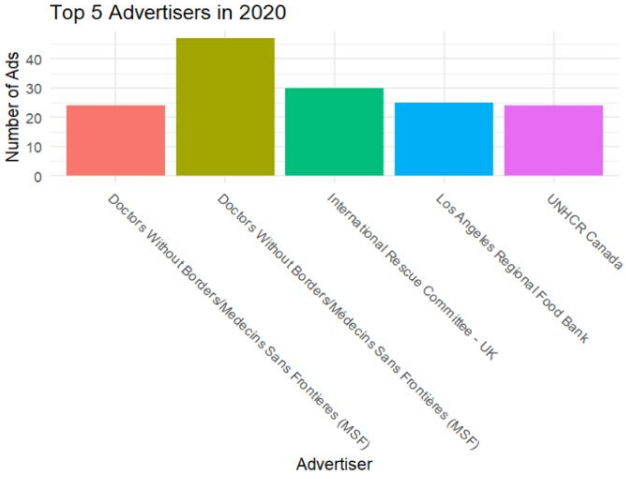
Frequency of Advertisements

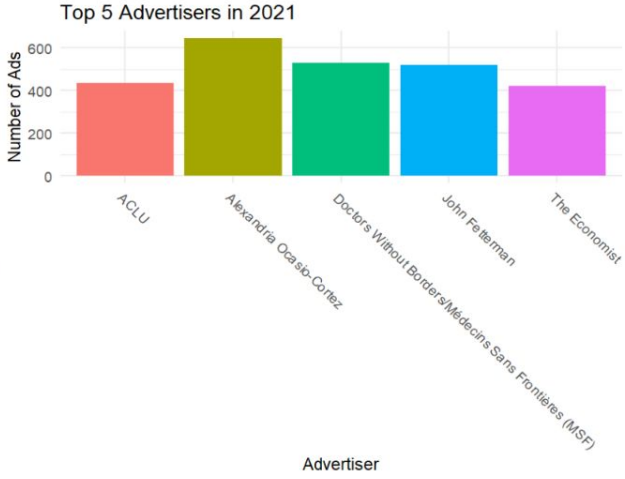


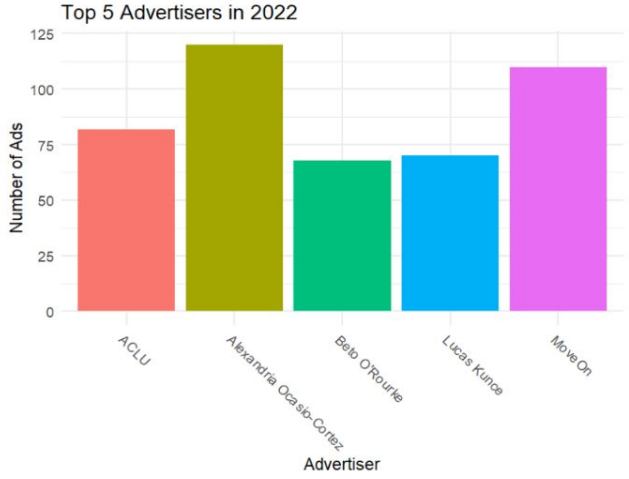

Top 5 Advertisers in 2017
Number of Ads
0
100
200
ACLU
International Rescue Committee
MoveOn.org
NRDC (Natural Resources Defense Council)
The Nature Conservancy
Advertiser


Top 5 Advertisers in 2018
Number of Ads
0
500
1000
1500
2000
ACLU
Beto O'Rourke
Donald J. Trump
International Rescue Committee
Planned Parenthood Action
Advertiser

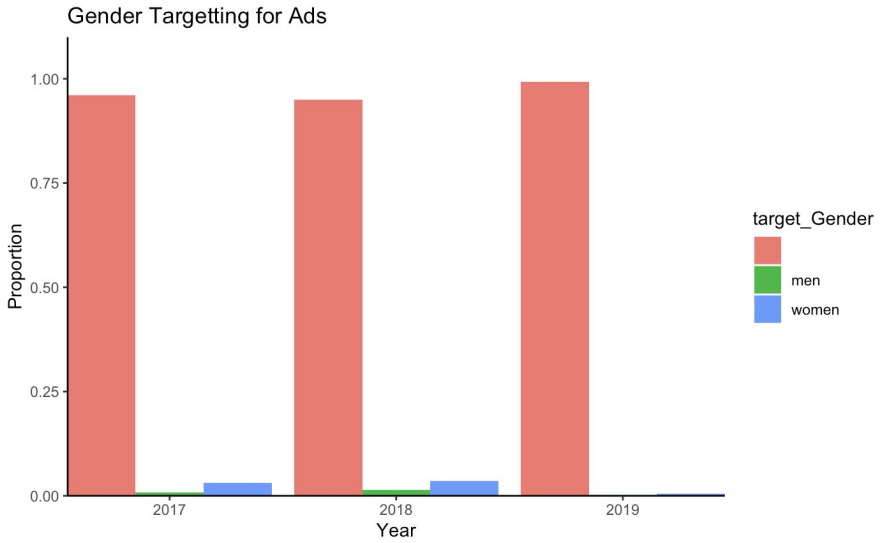

Top 5 Advertisers in 2019
Number of Ads
0
1000
2000
Amy Klobuchar
International Rescue Committee
Jay Inslee
Kirsten Gillibrand
Planned Parenthood
Advertiser

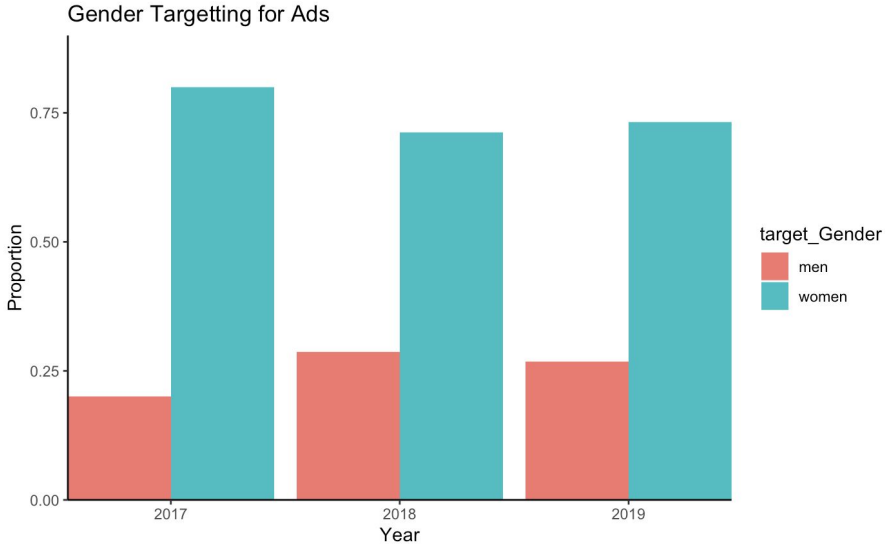

Top 5 Advertisers in 2020
Number of Ads
0
10
20
30
40
Doctors Without Borders/Medecins Sans Frontieres (MSF)
Doctors Without Borders/Médecins Sans Frontières (MSF)
International Rescue Committee - UK
Los Angeles Regional Food Bank
UNHCR Canada
Advertiser


Top 5 Advertisers in 2021
Number of Ads
0
200
400
600
ACLU
Alexandria Ocasio-Cortez
Doctors Without Borders/Médecins Sans Frontières (MSF)
John Fetterman
The Economist
Advertiser

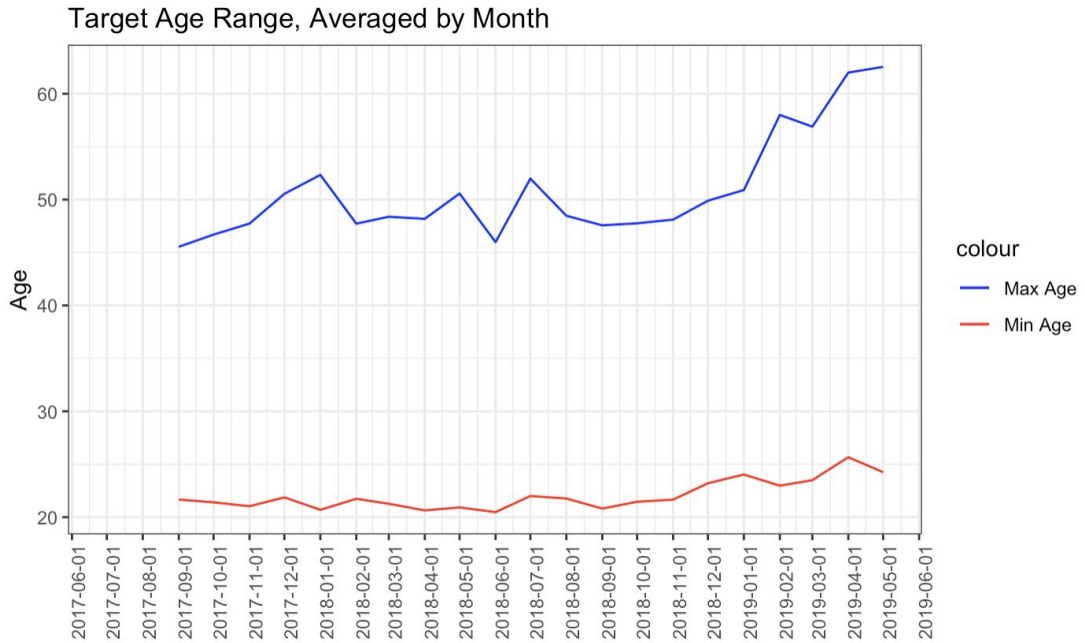

Top 5 Advertisers in 2022
Number of Ads
0
25
50
75
100
125
ACLU
Alexandria Ocasio-Cortez
Beto O'Rourke
Lucas Kunce
MoveOn
Advertiser

Advertisement Targets: Gender





Advertisement Targets: Age Range



Top Advertisers by year

Advertiser	Count	Year
ACLU	277	2017
International Rescue Committee	261	2017
MoveOn.org	261	2017
The Nature Conservancy	198	2017
NRDC (Natural Resources Defense Council)	195	2017

Advertiser	Count	Year
Beto O'Rourke	1910	2018
ACLU	1292	2018
Donald J. Trump	1224	2018
International Rescue Committee	1148	2018
Planned Parenthood Action	1120	2018

Advertiser	Count	Year
International Rescue Committee	2741	2019
Jay Inslee	1904	2019
Kirsten Gillibrand	1213	2019
Planned Parenthood Action	1173	2019
Amy Klobuchar	1047	2019

Advertiser	Count	Year
Doctors Without Borders/Médecins Sans Frontières (MSF)	47	2020
International Rescue Committee - UK	30	2020
Los Angeles Regional Food Bank	25	2020
Doctors Without Borders/Medecins Sans Frontieres (MSF)	24	2020
UNHCR Canada	24	2020

Advertiser	Count	Year
Alexandria Ocasio-Cortez	645	2021
Doctors Without Borders/Médecins Sans Frontières (MSF)	529	2021
John Fetterman	521	2021
ACLU	436	2021
The Economist	421	2021

Advertiser	Count	Year
Alexandria Ocasio-Cortez	120	2022
MoveOn	110	2022
ACLU	82	2022
Lucas Kunce	70	2022
Beto O'Rourke	68	2022

Most common words by Year

2017

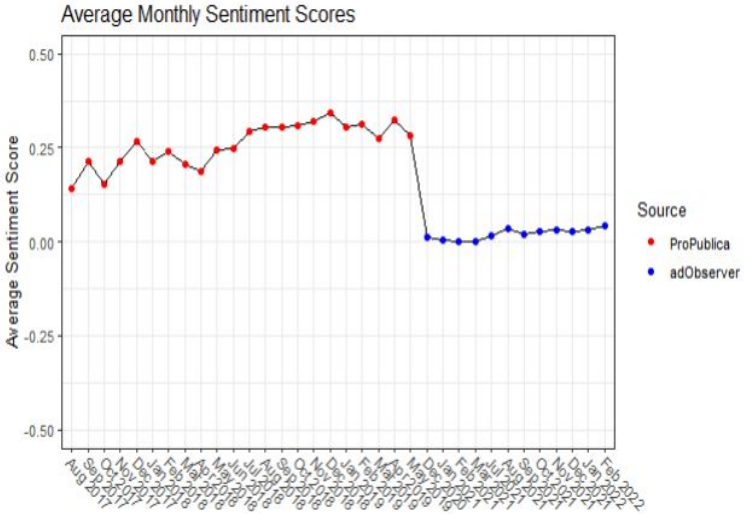
2018

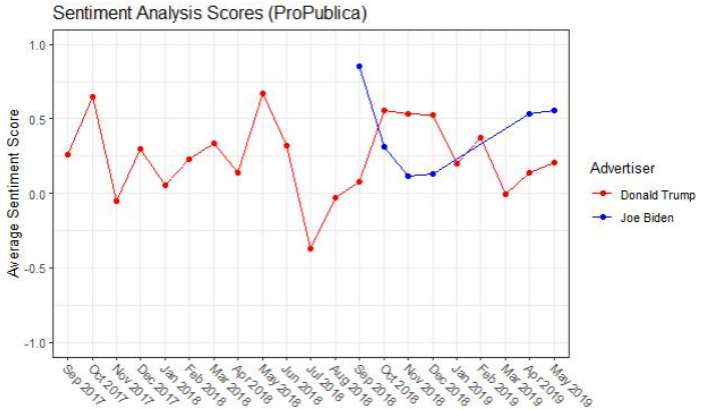
2019

2020

2021

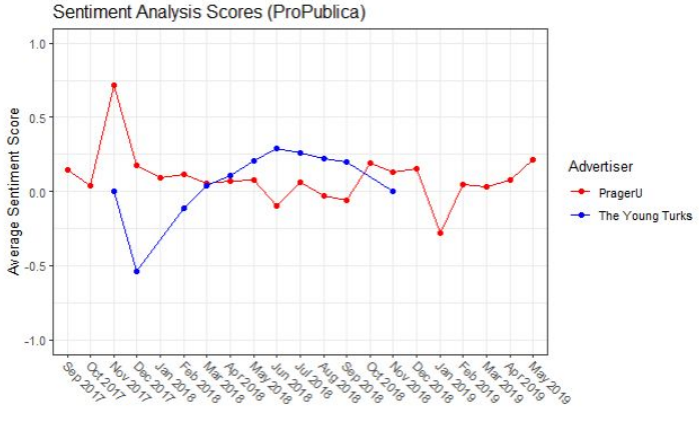
2022





- Sentiment analysis over time using VADER (Valence Aware Dictionary and sEntiment Reasoner).
- Large discrepancy in scores between the two datasets.
    - adObserver dataset included many ads with web addresses, different languages, and non-standard sentence structure causing the readings to be inaccurate for adObserver.

year	avg_sentiment_score
2017	0.21
2018	0.289
2019	0.295
2020	0.011
2021	0.016
2022	0.03



Limitations

The data has many limitations...

Making it difficult to robustly identify any trends and make inferences. There are:

- Gaps in the data
  - Missing data in 2019, 2020, 2021, and 2022
- Inconsistencies in target labeling
- Self-selection bias
  - Any “trends” in targets, frequencies, etc. depends the people that install browser extensions
- Facebook hinders data collection process

Facebook Blocking Ad Data Collection

TECH / FACEBOOK / POLICY

Facebook bans academics who researched ad transparency and misinformation on Facebook

Facebook Moves to Block Ad Transparency Tools — Including Ours

Our tool had let the public see exactly how users were being targeted by advertisers. The social media giant urged us to shut it down last year.

by Jeremy B. Merrill, special to ProPublica, and Ariana Tobin, Jan. 28, 2019, 4:29 p.m. EST

TECH • FACEBOOK

Facebook Promised To Label Political Ads, But Ads For Biden, The Daily Wire, And Interest Groups Are Slipping Through

A failure in Facebook's transparency system means some election ads aren't disclosing who paid for them.

Recommendations

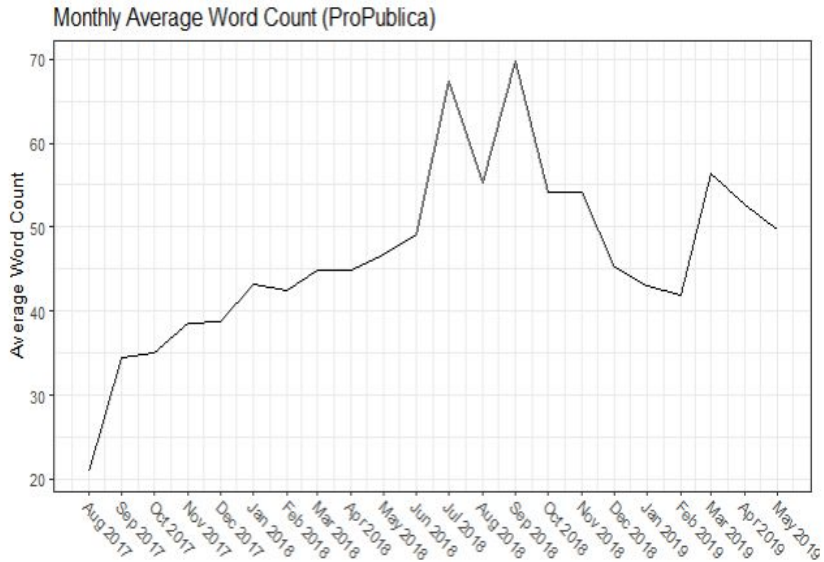
Our Recommendations

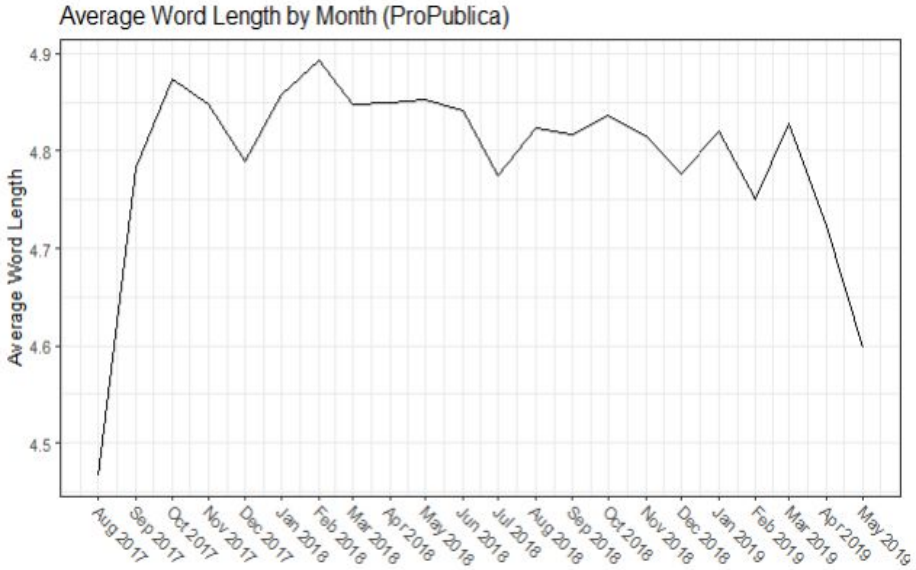
1. Seek out more and better data, or
2. Use other methods to identify trends in online political advertisements, or
3. Pursue other stories, or
4. Write about the limitations of data collection of advertisements on social media platforms.

Questions?

Bonus Slides

Advertisement Word Count





2017

2018

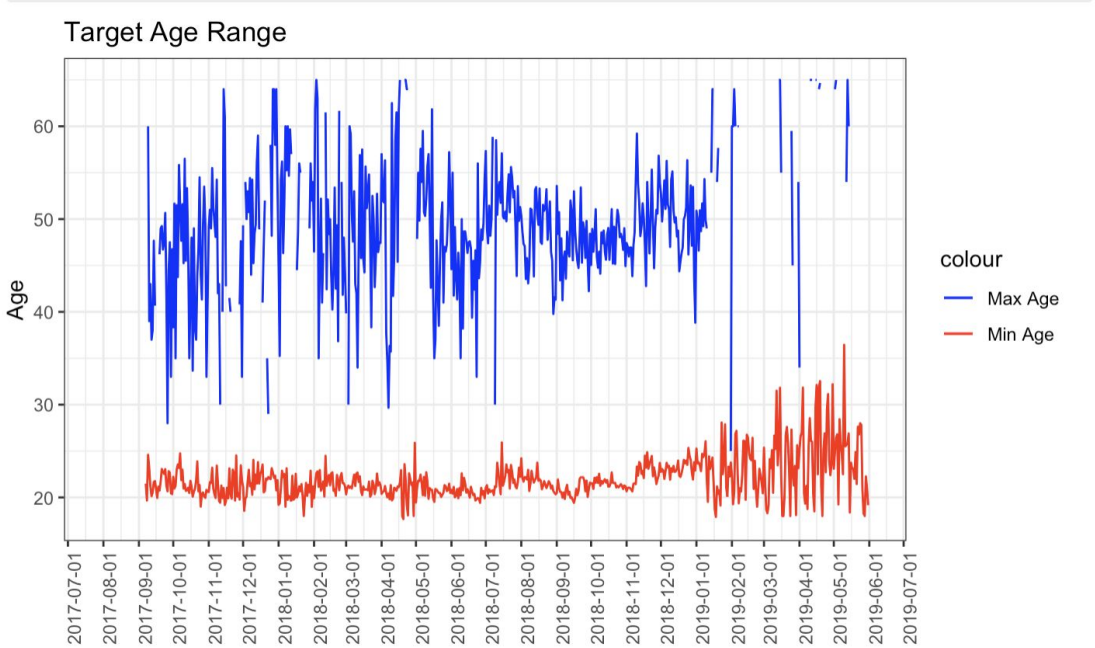
2019

2020

2021

2022

Advertisement Targets: Age Range



Other Advertisement Targets

target_Retargeting <chr>	n <int>
	136958
people who may be similar to their customers	24379
recently near their business	987

3 rows

target_Website <chr>	n <int>
	155991
people who have visited their website or used one of their apps	6333

target_Agency <chr>	n <int>
	161910
Acxiom	35
DLX	5
Epsilon	35
Experian	330
Oracle Data Cloud	9

6 rows

Advertisement Target Regions and States

Description: dt [30 × 3]

target_Region <chr>	n <int>	prop <dbl>
North Dakota	564	0.003
Ohio	948	0.006
Oregon	528	0.003
Pennsylvania	602	0.004
Tennessee	400	0.002
Texas	2051	0.013
Virginia	335	0.002
Washington	1045	0.006
Wisconsin	695	0.004
the United States	70290	0.433

21–30 of 30 rows

Previous 1 2 3 Next

Description: dt [39 × 3]

target_State <chr>	n <int>	prop <dbl>
Hillsborough County, Florida	111	0.001
Illinois	760	0.005
Indiana	238	0.001
Iowa	278	0.002
Kansas	217	0.001
Kentucky	149	0.001
Maine	139	0.001
Maryland	551	0.003
Massachusetts	336	0.002
Michigan	663	0.004

11–20 of 39 rows

Previous 1 2 3 4 Next