A Security Analysis of Facebook's Political Ad Library

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11/13/2019
Background
Russian Disinformation on Facebook during 2016 election
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• **Restrictions on Political Advertisers**
  • Facebook, Google, and Twitter begin some form of disclosure of payers for political advertising
  • Major platforms began some form of verification of identity of political advertisers
  • Major platforms place restrictions on who can pay for political advertising, usually geographic

• **Transparency Archives for Political Content**
  • Facebook Ad Archive launched May 7th, 2018
  • Google Political Ad Transparency dataset launched May 31st, 2018
  • Twitter Ad Transparency Center launched June 28th, 2018
Facebook

- Platforms: Web Portal and API

- Accessible to any ID verified user who agrees to Terms of Service

- Data available:
  - Ad Creative Text/Image/Video
  - Impression & Spend (Bucketed)
  - Demographic & Geographic distribution of impressions
  - Advertiser-specified start date, end date, disclosure string
  - Page that the ad ran against
Google

• Platforms: Web Portal and Big Query dataset

• Accessible to anyone, no login required

• Data available:
  • Link to composed Ad for non-Third Party ads
  • Impression & Spend (Bucketed)
  • Demographic & Geographic targeted groups
  • Start & End date
  • Vetted Advertiser identifying information (FEC id, EIN)
Twitter

• Platforms: Web Portal only

• Accessible to anyone, no login required

• Data available:
  • Ad Creative Text/Image/Video
  • Exact Impression & Spend
  • Demographic & Geographic distribution of impressions
  • Start & End date
  • Billing information for Ad payer

• No longer accepting political advertising as of Nov. 22\textsuperscript{nd}, 2019
Facebook:
• $888M since May, 2018 in the United States

Google:
• $126M since May, 2018 in the United States

Twitter:
• <$5M since June, 2018 in the United States
Facebook Ad Archive Overview
In the United States, advertisers are required to
• Disclose ads about “Social Issues, Elections, or Politics”¹
• Provide an accurate disclosure string naming the entity that paid for the ad, conforming to a standard format

¹ https://www.facebook.com/business/help/198009284345835
Facebook Ad Library

NYU

~670 results
Search results display ads with text that matched your keyword search term. Only ads about social issues, elections or politics are included.

Filter By:  United States  Active and Inactive  All Impressions  All Pages  All Disclaimers  All Platforms

Launched November 2019

Active
Started running on Nov 7, 2019
ID: 467082817245888
About social issues, elections or politics

The Lawfare Project
Sponsored • Paid for by The Lawfare Project
If you’ve experienced anti-Semitism at NYU, contact The Lawfare Project today. We can help!

Contact Us Today
The Lawfare Project provides guidance and legal assistance to students, professors, and campus...

See Ad Details

Active
Started running on Nov 7, 2019
ID: 466682317539625
About social issues, elections or politics

The Lawfare Project
Sponsored • Paid for by The Lawfare Project
If you’ve experienced anti-Semitism at NYU, contact The Lawfare Project today. We can help!

Contact Us Today
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See Ad Details
Facebook Ad Library Report
United States

Explore, filter and download data for ads about social issues, elections or politics. See overall spending totals, spending by specific advertisers and spend data by geographic location.

This publicly accessible report is part of Facebook’s efforts to increase transparency in advertising.

Ad Library totals
Includes ads about social issues, elections or politics (since May 2018)

<table>
<thead>
<tr>
<th>Total number of ads in the Ad Library</th>
<th>Total amount spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,598,150</td>
<td>$887,769,277</td>
</tr>
</tbody>
</table>
Facebook Ad Library API gives access to the same dataset as the Web Portal

- Searchable by keyword string or page id

- No direct access to images or videos, but these can be collected from a link provided by the API

- Most data provided through the Web Portal is available through the API, with the exception of Active status and whether the ad has been removed for a policy violation
Security of Facebook’s Ad Library
Question 1)
How good is Facebook at enforcing their disclosure policy?
Question 1)
How good are advertisers at voluntarily disclosing ads that meet the criteria for inclusion in the Ad Library?
Question 1)
How good are advertisers at voluntarily disclosing ads that meet the criteria for inclusion in the Ad Library?

Answer:
They’ve gotten a bit better, but there is a problem with persistent non-disclosure.
Question 2)
How useful are disclosure strings for understanding which entities are spending money on political advertising?
<table>
<thead>
<tr>
<th></th>
<th>Pages (Pct)</th>
<th>Ads (Pct)</th>
<th>Spend (Pct)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never attributed</td>
<td>69,072 (54.6%)</td>
<td>200,751 (3.2%)</td>
<td>$15,266,952 (2.4%)</td>
</tr>
<tr>
<td>Misattributed Undisclosed</td>
<td>17,297 (13.7%)</td>
<td>156,348 (4.2%)</td>
<td>$21,996,150 (3.5%)</td>
</tr>
<tr>
<td>Misattributed Typo’d</td>
<td>1,776 (1.4%)</td>
<td>299,807 (8.1%)</td>
<td>$61,019,010 (9.8%)</td>
</tr>
<tr>
<td>Total Misattributed</td>
<td>87,926 (69.6%)</td>
<td>655,619 (17.7%)</td>
<td>$98,153,857 (15.8%)</td>
</tr>
</tbody>
</table>

**TABLE VI: Corrected Aggregated Advertiser statistics**
Question 2)
How useful are disclosure strings for understanding which entities are spending money on political advertising?

Answer:
They... aren’t.
Question 3)
Can we use the information that has been made transparent to find violations of Facebook’s policies?
Undisclosed Coordinated Activity
What is Undisclosed Coordinated Activity?

Advertisers are required to truthfully disclose who pays for ads that meet the criteria for inclusion in the Ad Library. Facebook has periodically banned advertisers who engage in “Coordinated Inauthentic Behavior”\(^1\)

Example of disclosed coordinated activity:
Target:

Undisclosed Coordinated Activity

Tool:

Simhashing: A locality sensitive hashing technique that creates hash values such that the difference between two hashes is equivalent to the Hamming distance of the two texts the hashes were created from
Target: Undisclosed Coordinated Behavior

1 Undisclosed Similar Ad Cluster:

- Simhashes:
  - 674905ac...
  - a983ae01...
  - 96adbd3a...

2 Undisclosed Coordinating Pages:

- Simhash: 6248b53c...
  - Associated Pages: The Smart Investor Savvy Investing

- Simhash: a983ae01...
  - Associated Pages: The Smart Investor The Financial Investor Savvy Investing

Ad Id: 001
Page: The Smart Investor Disclosure: The Smart Investor Text: The average MJ stock...

Ad Id: 002

Ad Id: 003
Page: Savvy Investing Disclosure: Savvy Investing Text: The average MJ stock...
Step 1:
Cluster near-identical ads using Simhashing. Determine mean number of disclosure strings per ad cluster. Establish cutoff for outlier clusters of z-score=2 or more.

Step 2:
For ad clusters associated with more than one page, what is mean number of times 2 pages are associated with each other? Establish cutoff for page clusters of z-score=2 or more.

Step 3: Identify pages that ran ads in outlier ad clusters. Group those pages together if they also meet the cutoff for page clusters
Corporate Astroturfing

West Virginia Citizens Against Lawsuit Abuse
Sponsored • Paid for by Citizens Against Lawsuit Abuse
Stop ridiculous lawsuits and stand with Citizens Against Lawsuit Abuse today.

Citizens Against Lawsuit Abuse - California
Sponsored • Paid for by Californians Against Lawsuit Abuse
Stop ridiculous lawsuits and stand with Citizens Against Lawsuit Abuse today.

Illinois Lawsuit Abuse Watch
Sponsored • Paid for by Illinois Lawsuit Abuse Watch
Stop ridiculous lawsuits and stand with Citizens Against Lawsuit Abuse today.
Dubious Commercial Activity

- **Inactive**
  - Started running on Jan 25, 2019
  - Related to politics or issues of importance

- **California Loan Programs**
  - Sponsored • Paid for by California Loan Program
  - Attention California Veterans, Active Duty and Their Families
  - The NEW 2019 VA Heroes Home Buyers Program makes it easier for you to become a homeowner (with as little as $900 in the bank)
  - Click below to get started:

- **Inactive**
  - Started running on Jan 14, 2019
  - Related to politics or issues of importance

- **National Veteran Loans**
  - Sponsored
  - Attention Florida Veterans, Active Duty and Their Families
  - The NEW State Approved Heroes Home Buyers Program makes it easier for you to become a homeowner (with as little as $900 in the bank)
  - Click below to get started:

- **Inactive**
  - Started running on Jan 12, 2019
  - Related to politics or issues of importance

- **National Veteran Loan Programs**
  - Sponsored • Paid for by National Veteran Programs
  - Attention Nebraska Veterans, Active Duty and Their Families
  - The NEW 2019 Heroes Home Buyers Program makes it easier for you to become a homeowner (with as little as $900 in the bank)
  - Click below to get started:
Clickbait

Internet destroys white woman who called the cops on black folks having a BBQ with 10+ brutal memes:

Internet Destroys White Woman Who Called The Cops On Black Folks Having A BBQ With 10+ Brutal Memes
Merritt Lake in Oakland, California, has seen some crazy stuff. According to locals, creepy men are jogging there in Speedos...
BoredPanda.com

See Ad Details
Inauthentic Communities

Angry Buckeyes
Sponsored by Angry Buckeyes
"According to a report from the conservative-leaning Tax Foundation, current tariffs will cause a squeeze for middle-class Americans — and lead to fewer jobs in the US. The think tank also estimated that the economic pain of the tariffs would get much worse in the event Trump follows through on all tariffs he has threatened."

Union Patriots
Sponsored by Union Patriots
"According to a report from the conservative-leaning Tax Foundation, current tariffs will cause a squeeze for middle-class Americans — and lead to fewer jobs in the US. The think tank also estimated that the economic pain of the tariffs would get much worse in the event Trump follows through on all tariffs he has threatened."

Middle Class Voices of Pennsylvania
Sponsored by Middle Class Voices
"According to a report from the conservative-leaning Tax Foundation, current tariffs will cause a squeeze for middle-class Americans — and lead to fewer jobs in the US. The think tank also estimated that the economic pain of the tariffs would get much worse in the event Trump follows through on all tariffs he has threatened."

Trump’s trade war could cost every middle-class American family $453 and could eliminate 292,000 US jobs
President Donald Trump’s tariffs will produce a drag on the economy, a loss of American jobs, and lower household...
Future Work
• Cluster Ads by campaign/central idea

• Extract more metadata
  • Named Entity Extraction
  • Sentiment scoring
  • Topic Modeling

• Use clustering and feature extraction to build a screening system for disinformative content
Conclusions
• Transparency can work!

• Tactics to spread disinformation are still evolving and we are very early in the lifecycle of this behavior

• All parties need to invest more time and money in solving this problem: Uses, Platforms, and Researchers