



Twitter Analysis of #Legalizing Marijuana



CONTENTS

- 1 PROBLEM STATEMENT
- 2 DATA PROCESSING
- 3 RESULTS
- 4 LIMITATIONS



Problem Statement

The optimal way to legalize **Controversial Policies** across Canada

DATA SOURCE: Twitter



1. One of the most popular social media platforms to analyze sentiments of people
2. Province-level data regarding Cannabis Legalization



Controversial Topic – Marijuana Legalization in Canada

PROS

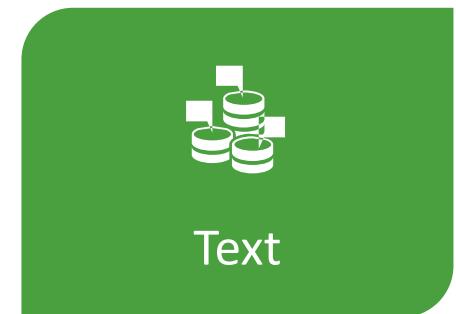
- Increase tax revenue
 - add to the legal economy instead of the underground economy
 - More money can be put towards roads, hospitals, schools, day care etc.
- Retail market value: \$4.9 - \$8.7 billion/ year
- Create jobs and labor income
- Improved Quality & Safety Control
 - restrict teen marijuana use
 - Quality will be monitored
- Decrease In Gang-Related Drug Violence
- Availability Of Medicinal Cannabis
 - chronic pain release (up to 40% better in effect), chemotherapy induced nausea, multiple sclerosis, backpain, insomnia, etc.
- Nutritious food source, a useful industrial crop and a renewable energy source



CONS

- Decreased Mental Health and Lungs are At Risk
- increase in pot-related emergency room visits
- Marijuana Is Addictive
- Second-Hand Smoke

DATA PROCESSING



Twitterscraper API

Scraping of twitter data using 'twitterscraper' API for each Province

One Dataset

Merge all Province-level information into a single table for further processing

Web Scraping

Scraping the number of followers for each user in the dataset

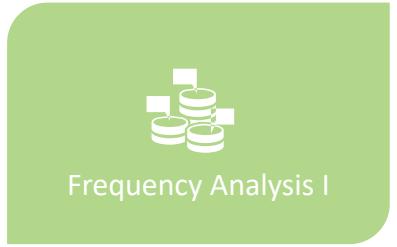
user	tweet-id	timestamp	likes	replies	retweets	text
CannabisBee	173187039230050304	2012-02-24 23:26:22	0	0	0	#cannabis Pot legalization activists caught in a 'cannabis con
DrugsWars	173172618705383426	2012-02-24 22:29:04	0	0	0	Pot legalization activists caught in a 'cannabis conundrum' -
cannabisreader	658667048986411008	2015-10-26 15:30:36	0	0	0	Calgary Police Chief Roger Chaffin says he's ready to talk pot http://ow.ly/TQv4A
cannabisresins	628065755293175809	2015-08-03 04:51:59	0	0	0	MME_CALGARY: #Marijuana Legalization In Italy: Lawmakers Suppo - pic.twitter.com/AKakQDDn2E SavinaHea..
liftandco	828670572481572864	2017-02-06 18:23:55	9	1	11	Calgary city council is now beginning their discussion on cann http://www.calgary.ca/General/Pages/Council-and-Committee-webc
PACE_ag	811400996895203329	2016-12-21 02:40:47	1	0	1	Province will seek input from #Albertans on marijuana minimum http://calgaryherald.com/news/local-news/province-will-seek-in
ExpertJoints	808933500554510531	2016-12-14 07:16:09	2	0	2	Key recommendations of the federal task force on cannabis lega MtGcXy pic.twitter.com/JTMITxRKzI
quondon	808929685891596289	2016-12-14 07:00:40	0	0	0	Key recommendations of the federal task force on cannabis lega

Text Pre-processing

1. Conversion to Lower-case
2. Tokenization
3. Removal of Stop words
4. Lemmatization

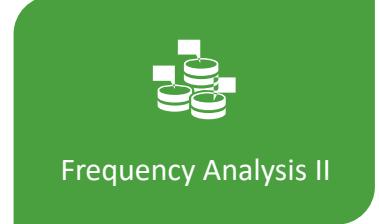
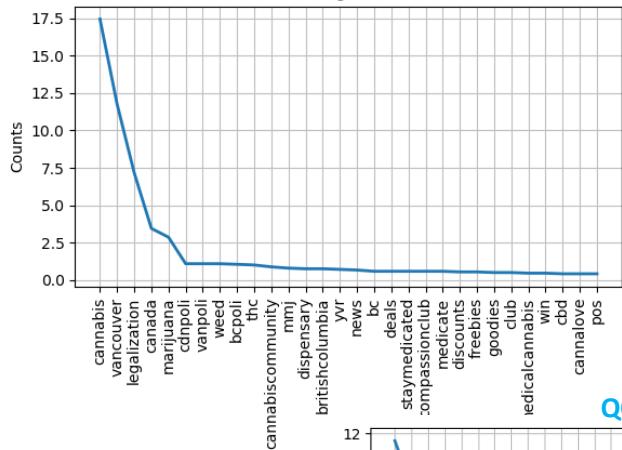


DATA ANALYSIS



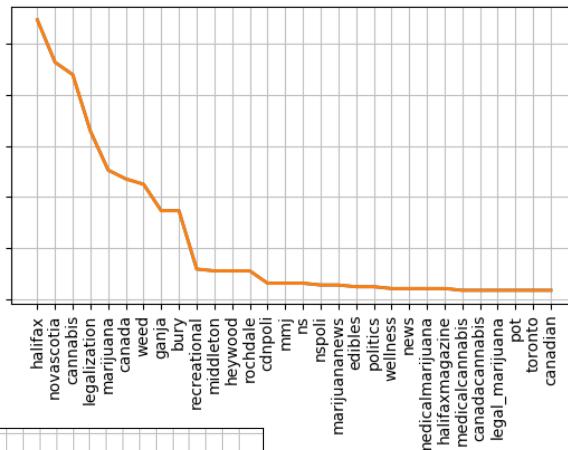
Hashtags

Frequency of important Hashtags at the Province Level
BC



No Hashtags

Frequency of words excluding Hashtags at the province level.
NS



Sentiment I

Unweighted Sentiments

Unweighted Sentiment analysis at the province level :

1. Before Announcement
2. During the period between Announcement and Legalization
3. After Legalization



Weighted Sentiments

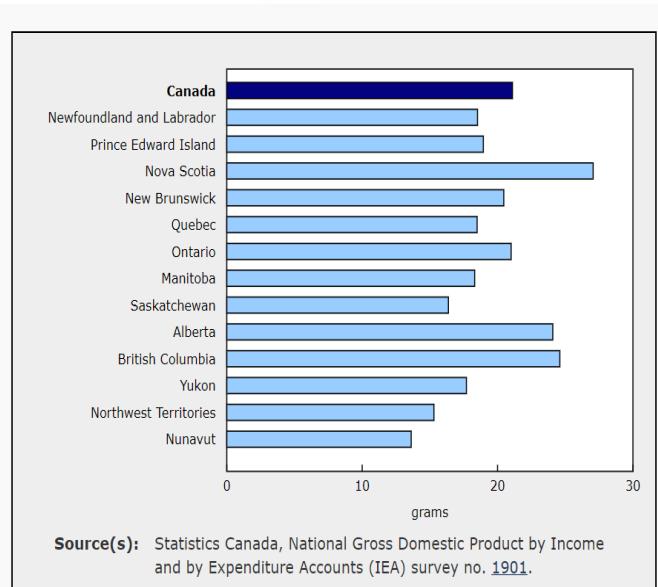
Weighted Sentiment analysis at the province level :

1. Before Announcement
2. During the period between Announcement and Legalization
3. After Legalization

RESULTS: Unweighted Sentiment Analysis



Province	Before Announcement	During announcement to legalization	After Legalization	Announcement sentiment change	Legalization sentiment change
AB	0.062125	0.107916	0.050827	73.71%	-52.90%
BC	0.057156	0.166197	0.115196	190.78%	-30.69%
MB	0.131123	0.036769	0.177426	-71.96%	382.54%
NS	-0.020758	-0.029575	0.105561	-42.48%	456.93%
ON	0.056615	0.172025	0.135803	203.85%	-21.06%
QC	0.047537	0.116557	0.092182	145.19%	-20.91%
SK	0.090785	0.105815	0.020695	16.56%	-80.44%



BC before legalization

- B.C. cannabis use more tolerated and commonplace
- Second highest per capita usage (24.6 grams)
- B.C. is the most supportive province of legalization (61% supported vs 53% in rest of Canada)
- 40% of all Canadian cannabis are grown in BC (most ideal cannabis growing area)



BC after legalization

- Alberta is taking away BC's claim as pot capital
- Alberta 70 private retail licenses, while B.C. just 1 public and 1 private license
- Win for big businesses and law enforcement, but those who pioneered legalization felt excluded because of penalties
- Predicted it will take 2 - 3 years for the system to mature



practice making a icy fist
@katieinhalifax

Is #weed legal or not? A simple question. What the @liberal_party has delivered is a parody of legal weed. #HRM #Halifax

The Star Halifax @thestarhalifax

As Halifax council gets ready to give second reading to new pot laws this week, a local marijuana advocate says he's unsurprised by the "heavy-handed" plan. thestar.com/halifax/2018/0...

1 5:14 AM - Jul 16, 2018



'Happy new years weed' Halifax as city rocks out to legalized pot

Rocker Matt Mays performs at a countdown to cannabis legalization concert at the Marquee Ballroom in Halifax on Tuesday night. (TARYN GRANT / STAR METRO)

RESULTS: Weighted Sentiment Analysis

investigate another possibility of the sentiment variation :

Whether people's emotion will be impacted by the influencers (accounts with more followers)

Method of Analysis

- scrapped the number of followers for each accounts
- multiplied the sentiment score for each post by the log of number of followers

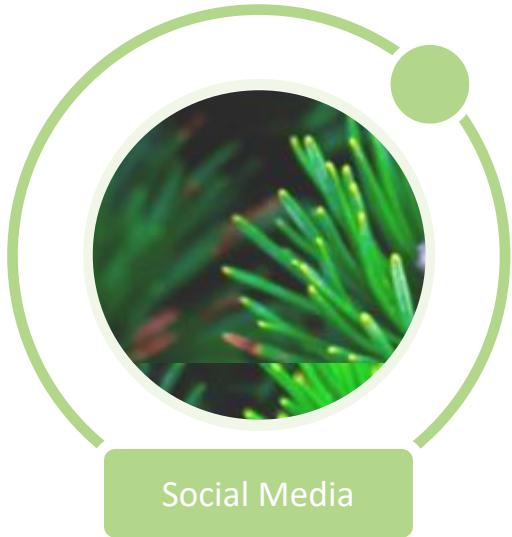
Province	Before Announcement	During announcement to legalization	After Legalization	Announcement sentiment change	Legalization sentiment change
AB	0.188291	0.378431	0.136355	100.98%	-63.97%
BC	0.196171	0.53665	0.321148	173.56%	-40.16%
MB	0.468012	0.145631	0.573359	-68.88%	293.71%
NS	-0.049391	-0.096372	0.322199	-95.12%	434.33%
ON	0.190894	0.545393	0.397824	185.70%	-27.06%
QC	0.170628	0.314733	0.091971	84.46%	-70.78%
SK	0.284976	0.344638	-0.043366	20.94%	-112.58%

Similar sentiment pattern

→ The general public's sentiment is likely to be affected by the influencers



Recommendations



Social Media are inevitably important platforms for policymakers to **engage** and **understand** about people's desires

Policymakers should **monitor influential social media accounts** to investigate the general public's sentiment towards the controversial topic

Governments should consider **trying and testing policy on certain provinces first**, then legalize across the whole country



Limitations

