Economic Changes and Frustrations in the US during the Coronavirus Pandemic: A Story in Reddit Posts

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Introduction and Motivation

The arrival of COVID-19 to the United States, first seen in the reports of cases spreading in nursing homes across the country in early 2020, along with a divided American leadership, helped lead to an economic crisis. In particular, the spread of the virus and its mismanagement, along with the necessity to implement long-term social distancing measures, set off a financial crisis for the service-based industry and its employees. As the day of the posting of this data story, December 26, 2020, there is no easy fix to this issue, since social distancing measures are necessary to stop the spread of the virus.

Motivation

As someone who has worked in all sorts of service roles in the past and recalling how many of my coworkers supported their families on an almost minimum wage income, this freezing of the service economy is especially worrisome. Furthermore, in states like Florida, unemployment benefit offices, physical ones, which were the primary way Floridians applied for unemployment benefits, were shut down because of the pandemic. At the same time, the online unemployment benefit application websites had been broken for years (source). The threat of having no funds to pay rent or to buy food was real for many Americans.

Also, I am interested in investigating this trend since my hometown of Miami, Florida relies on a vibrant tourism industry to keep its economy healthy. I am concerned about the long term effects of residents of Miami being unable to find work, while receiving little financial support from the government.

Goal

In this data story, I explore the story of this growing economic downturn through activity on job seeking advice forums on a popular social media site, Reddit.

Choice of Data Source and Data Acquisition Method:

The data was sourced from two popular job advice subreddits (forums) on Reddit.com, r/Jobs and r/Careerguidance. I chose these two forums since they are

field agnostic. Other job advice forums seem to skew towards tech careers, and I wanted to focus on the impact to those in non-tech roles.

I chose the social media site Reddit since it is free to make an account, and it has been around for fifteen years. So, the site has a low barrier to entry and it is established. Also, just under 30 million Americans are on Reddit; the user base skews towards Americans.

I scraped the Top 1000 posts of all time from the target forums, where "top" status is determined by number of upvotes. Therefore, the Top 1000 posts data for R/Jobs is a record of the top thousand most liked posts since the inception of the forum in 2008.

The scraping itself was done using PRAW, a Python Reddit API wrapper documentation. The results of the data cleaning can be found in the `data` folder, as well as the `data_analysis` folder. The full data are in the form of .csv's in the 'data' folder, for the interested reader.

Questions and Analysis

Landscape of Top 1000 Posts:

First, I wanted to answer the question:

Did activity in these subreddits go up in the months surrounding the spread of COVID-19 to the US?

An Interesting Pattern from R/Careerguidance:

The answer to the question was *yes* in the first subreddit.

2020 dominated the landscape of the top 1000 posts of all time in R/Careerguidance. In fact, we have that a whopping 547 of the posts in the Top 1000 list (so the majority by many standards) were from 2020! Only 383 were from 2019, 67 were from 2018, and 3 were from 2017. 2016 saw no share in the Top 1000.

This figure (Figure 1) illustrates this disparity in popularity of the posts between years:

This fact is particularly impressive considering that the top 1000 group consists of the top 1000 posts of all time since the inception of the subreddit, which was in 2011!

To me, this means that 2020 saw more user engagement or a form of user "agreement" than any other year. "Likes" and "upvotes" are, after all, a way for someone to agree with the sentiment of a post. The Top 1000 list keeps track of record numbers of these "upvotes".
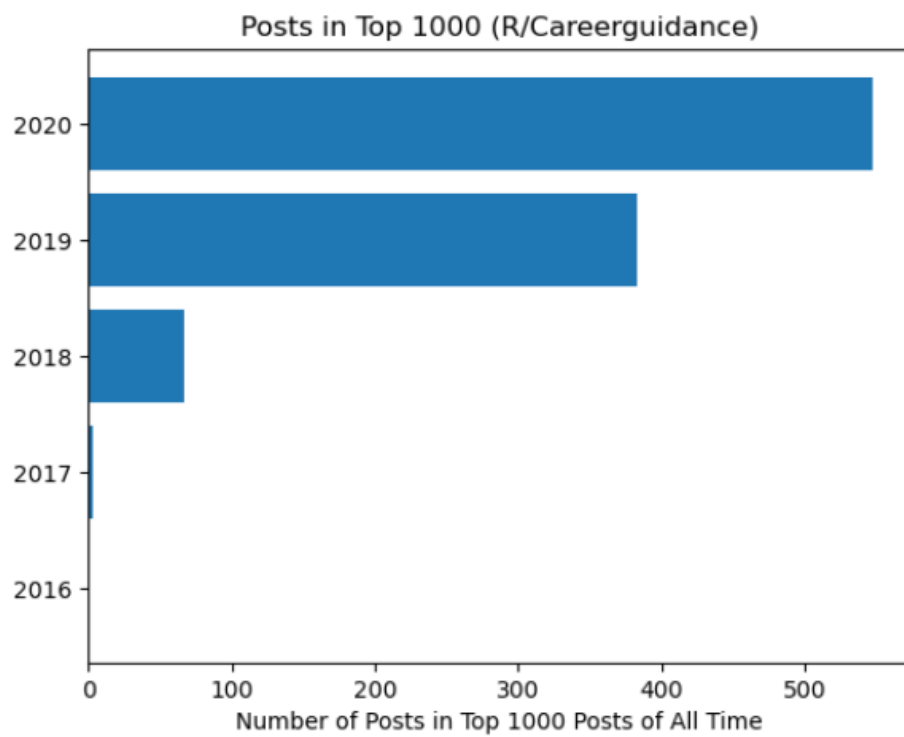
Figure 1: 2020 Outperforms in Subreddit

I would really like to attribute 2020's overrepresentation in the data to the spread of the Coronavirus in the US and its disastrous effects on employment, but we can't be sure without carrying out some more precise statistical tests. Furthermore, we can't truly attribute causation without experimental data.

Another Interesting Result from R/Jobs:

Doing the same analysis for r/Jobs, I found that the 2020 presence wasn't as strong in the Top 1000 posts of all time as it was on R/Careerguidance. However, 2020 still appeared more in the Top 1000 list than any other year. The answer to the research question was still a *yes*.

In fact, 393 of the posts in the Top 1000 were from 2020, 308 were from 2019, 157 were from 2018, 41 were from 2017, and 35 were from 2016.

This figure illustrates this disparity in popularity of the posts between years on r/Jobs:
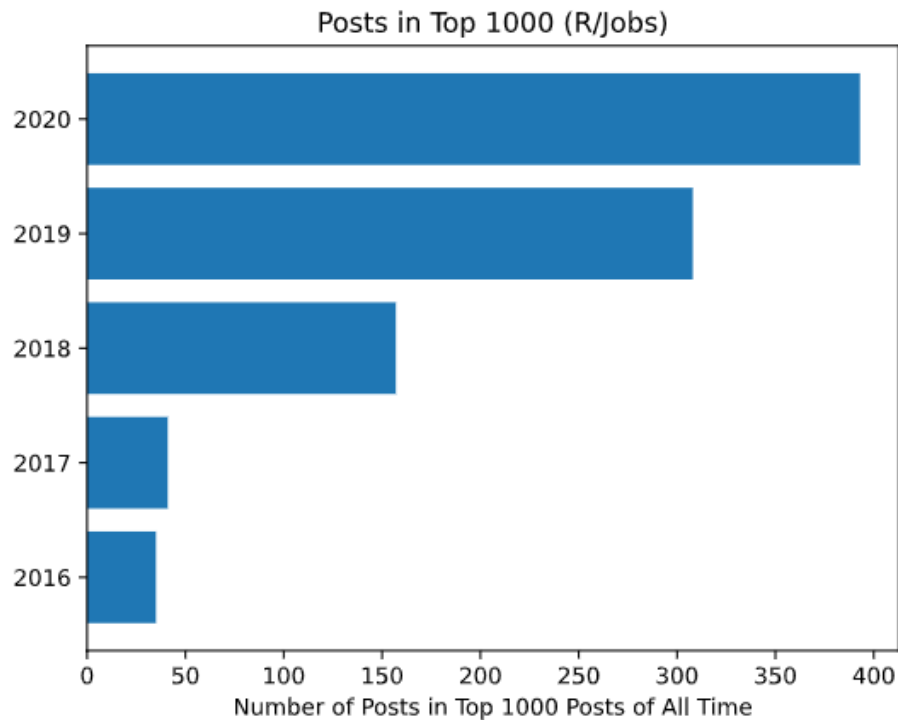

Figure 2: 2020 Outperforms in Subreddit

This is still impressive, considering that 2020 isn't even over yet. The fact that 2020 took a larger share of the Top 1000 posts than any other year since the

forum's creation in 2008 also compels me believe that this year saw a huge spike in user engagement on job-seeking advice forums.

February, March, and April 2020 in R/CareerGuidance

In order to investigate whether there was a spike in activity and engagement after the arrival of the Coronavirus to the US, I wanted to focus on key statistics from the months that suffered the initial shock of COVID-19.

To do this, I separated the Top 1000 posts list into the critical months from 2020. The results are listed in the table below.

February acts as the "control" month, since COVID-19 was initially confirmed to be a threat in the US closer to March. It is clear that after the economic effects of the virus first began in March and April, a few key statistics start to trend upwards.

Statistic in R/Careerguidance	February Posts	March Posts	April Posts	–Top 1000 Form Posts of All Time–}
Number of Posts	38	50	44	1000
Average Post Score	207	267.42*	245.70*	208.5
Average Number of Comments	80.74	99.98*	84.73	77.01*
Highest Number of Comments on Post	300	457*	310	579
Highest Post Score	675	772	1250	1484

It's clear that the average post scores in March and April were much higher than the average post scores in the Top 1000 and in February (267.42 and 245.7 points compared to 208.5 points and 207 points). Then, more users "agreed" with the sentiment of posts in March and April, since scores record the number of upvotes.

Indeed, another important statistic trended upwards in the critical months of March and April. The average number of comments in March and April were 99.84 and 84.73, respectively, compared to 80.74 in February and 77.01 in the Top 1000. A higher average number of comments on a post indicates a higher level of user engagement with a post. From this pattern, it seems that a lot more users were involved with the posts in the critical months after the beginning of

the economic fallout of the pandemic.

Notice that while this rise in engagement could possibly be attributed to the fact more people were online thanks to the social distancing measures, these are job seeking advice forums, so I would like to think that the rise in engagement was correlated with the start of the economic crisis. Of course, to establish correlation we need to calculate a correlation.

April 2020 in R/CareerGuidance

From the table above, we see that an important statistic in April was the record top scoring post, which was much higher than in the previous months (*1250* compared to 675 in February and 772 in March).

Let's look at the contents of this record post:

We find that this post with a score of 1250 in r/careerguidance was directly related to losing your job during the coronavirus pandemic:

- "Are you seriously trying to quit your job during a global pandemic and impending recession? o_O

- (Advice) This will probably be downvoted to hell. That's okay. But really, there has been an uptick in people posting about quitting their jobs. This isn't to berate you. If you aren't happy, you really should find a way to leave. …Where I am, the depression from the lockdown restrictions alone has led to a rise in suicides. Quitting your job and then finding yourself in the cold may put you in a worse off position. This is sounding harsh but it is coming from a good place. Things are going to work out. We just don't know when. In the meantime, hang in there. Take this global lockdown time to plan your exit meticulously, save up and start skilling up for the jump. Good luck! o_O" source

From the fact this post was upvoted so many times, I would say that users began feeling anxiety regarding quitting or losing their jobs during the pandemic around this time. The Coronavirus started to gain status as an economic threat in addition to its status as a health threat.

An interesting thing to note is that this post is actually the second highest scoring post on the forum from all time, second only to a post from 2019.

For control purposes (as close as we can get to a control), let's look at the post with the highest number of comments in February:

- "Do you wished you had done some job shadowing before declaring your major in college?"source

The highest scoring post in February is a question regarding job shadowing and not at all concerned with the Coronavirus pandemic. At that time, there still

was not a focus on job searching during the pandemic.

Let's also investigate the highest scoring post from March in R/Careerguidance. March was almost too soon to see the full extent of massive layoffs and rescinded job offers.

- "I was rejected from a position that required a high school diploma when I have a bachelor's. How am I supposed to properly handle how pathetic I feel right now?" source

This post is concerned with rejection from a job, and never mentions the Coronavirus as a reason for the rejection.

From this pattern, we see engagement rise when the top posts concern the pandemic,(April's top post had about 500 points more than previous months' top posts) a health and economic threat every user was feeling.

Another Question:

I also wanted to investigate:

What is the overall type of posts on these subreddits, both before and after the start of the economic downturn (start of the "Lockdown")? Was there a change in the type of subjects discussed?

Language Landscape of Posts Before March 2020:

What were the most popular types of posts before the onset of the pandemic? Which were the most popular types of posts after the onset? We can begin to answer these questions by extracting the top scoring posts from each subreddit in the months of February (control), March, April, and May.

Language of February 2020 in R/Careerguidance and R/Jobs:

In order to investigate the "language landscape" of the most popular jobs just before the start of the pandemic, let's look at the titles of the top five posts from February in both subreddits:

R/Jobs	R/Careerguidance	Rank
Thanks r/jobs, I'm surprised this actually worked. Phone Interview: "What payment compensation do you want to receive while working here?" Me: "I would like to be compensated fairly based off my responsibilities, what do you suggest?" "Well our range is $____ to $____"	Do you wished you had done some job shadowing before declaring your major in college?	1
We Need To Openly Talk About The Mental And Emotional Anguish Faced By Job Seekers	I found my coworkers have a secret group chat where they slander my name or chat about me. What should I do?	2
Finally offered a job after using this sub & 134 job applications later…here's what I learned.	Is there more to life than a 9-5, 40-hour work week?	3
My 16-month job search has come to an end	How important to you is it to have a good boss?	4
Is employer interviewing then ghosting just the norm now?	Only work about 3 actual hours per day (non salaried) and boss is non the wiser and thinks I do good work. Should I tell her the reality?	5

These top posts serve as our "control". The "rank" column refers to the post's place in top scoring posts for that month. While I expected these posts to be a bit more optimistic, I found that the language of R/Jobs is still bleak, suggesting that posts on R/jobs had a baseline "bleakness" to them.

Language of March 2020 in R/Careerguidance and R/Jobs:

I then carried out the same analysis for March across both subreddits:

R/Jobs	R/Careerguidance	Rank
There should be some kind of regulation where job postings must include the pay and physical work address	Anyone feel depressed after being on LinkedIn?	1
I really am an essential employee and I'm quitting. How do I make this less painful?	Did Covid-19 put a halt on your job search ? Join the club.	2
How do you deal with the guilt that comes along with trying to enjoy yourself while being unemployed?	Interviewer berated me because of a misspelled word on my resume, they were incorrect. How should I have handled this situation?	3
Had a Job Interview cancelled due to Coronavirus in the area. What do I say to the employer?	Anyone else get annoyed with LinkedIn? (Rant)	4
Just received a job offer. . . I've never been less excited.	Has the COVID-19 response delayed anyone else's career path?	5

We can certainly see that there was a trend towards "bleakness" for the top posts in March, in both subreddits.

Several of the top five scoring posts were directly concerned with the interference of Coronavirus with the job search. For one user, there was a sense of guilt associated with leaving a job where they were an essential worker (see: Rank 2 post on R/Jobs in the table).

Language of April 2020 in R/Careerguidance and R/Jobs:

R/Jobs	R/Careerguidance	Rank
Why Do Nearly All Entry-Level Jobs Require Unrealistic Amounts of Experience or Certifications?	Are you seriously trying to quit your job during a global pandemic and impending recession? o_O	1
Has anyone actually stopped caring about a position/company before because they have the most outrageous interviewing processes or do things that are just weird/bad? I know this isnt even related to my job function but sometimes this stuff is just too much.	Do you feel like COVID-19 is going to change the workforce permanently?	2
Got my first Interview Ever!!!	What are some niche careers that while not that widely known, you think people should be aware of?	3
I'm 29 and I've been unemployed for 1.5 years because I wanted to. What do I say on my next interview?	My company keeps forcing everyone to do social activities on webcam as a means of overcompensating for the fact that we're working from home. I'm really not a fan of this. What should I do?	4
Would you work 13 hours a day 3 day a week?	Hello Millenials. I'm graduating university next year into the recession/depression, and I'm terrified. How did you survive the 2009 recession and its aftermath?	5

I would argue that April was the month with the highest number of "discouraged"/"bleak" top posts. Most of the top five ranking comments had to do with the fear of not finding work, and are directly related to the economic fallout

sparked by the spread of COVID-19.

Language of May 2020 in R/Careerguidance and R/Jobs:

R/Jobs	R/Careerguidance	Rank
Does anyone else find LinkedIn toxic?	Anyone else graduated, got in a 'career' and realise there was more to life than work?	1
How will I ever go back to an office?	Is there no place for employees that are just pretty good at their jobs	2
I'm going to a job interview in 2 hours – do I wear a mask??	How do I get over my deep-seated dislike of working?	3
I was laid off due to COVID-19 on March 20th. Was told my position was eliminated. Today, I just found out that my previous job was listed online a week ago as open and is accepting applications.	It's no longer enough to do your job, but you have to be above and beyond to keep it	4
Has "faking it till you make it" gone too far?	Lost in job hunt and life, what the hell do I do now	5

May certainly has less bleak top posts than April, but the table still shows that the most upvoted posts still expressed deep concern with the effects of COVID-19 on job losses (see Rank 4 post in R/Jobs).

These tables paint a bleak picture of the state of the worker in America, both in service and non-service based roles.

Summary + Possible Limitations of My Analysis

In summary, I found evidence of increased activity in the form of both user engagement (comments) and user "agreement" (likes/upvotes) in two very popular job seeking advice forums on Reddit, aimed to all industries and in particular to people in service roles in the US. Furthermore, the tone of the most popular

posts became more bleak, and several reffered to the fear of losing their jobs during the pandemic.

Limitations:

A possible limitation to the analysis is that one social media site is not a faithful representation of the entire country, or even of a single user. However a drastic changes in online activity on a job searching forum might signal drastic changes in the US economic landscape. In particular, on job search advice forums that are field-agnostic, high ranking posts are likely to contain problems common to more Americans.

Another limitation to consider is that people who are doing well financially during the critical initial months of the spread of COVID-19 are not going to be posting on internet forums about their struggles. Perhaps there is a bias on these subreddits towards posts that resonate with people who are feeling left out of the job finding process.

A final possible limitation to using Reddit to understand the economic fallout of COVID-19 in the United States is that what trends online often aligns with a pessimistic view of the world. Perhaps posts featuring stronger feelings of hopelessness were upvoted more often than posts with an optimistic view of the job market.