EMDOCS Jobs

The Market for an Emergency Physician: It Ain't What It Used to Be

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Introduction

When I last applied for jobs during my family's move to Texas - at the end of 2014 - I was actually offered every job I applied for, except for one (which was then offered to me a month later). This mirrored my experience two years before when, at the end of my residency, openings were everywhere and all a resident had to do was sit back and wait for the free steak dinner.

Flash forward to the present and there is a palpable difference in the market. Two often-cited factors are the use of non-physician practitioners as cheaper labor and private equity encouraging an overproduction of residents. The COVID-19 pandemic has likely only exacerbated the problem.

While the reasons for the change are important, this analysis will focus on understanding the magnitude of the problem. Our question, then: **how has the market for emergency physicians changed?**

Methods

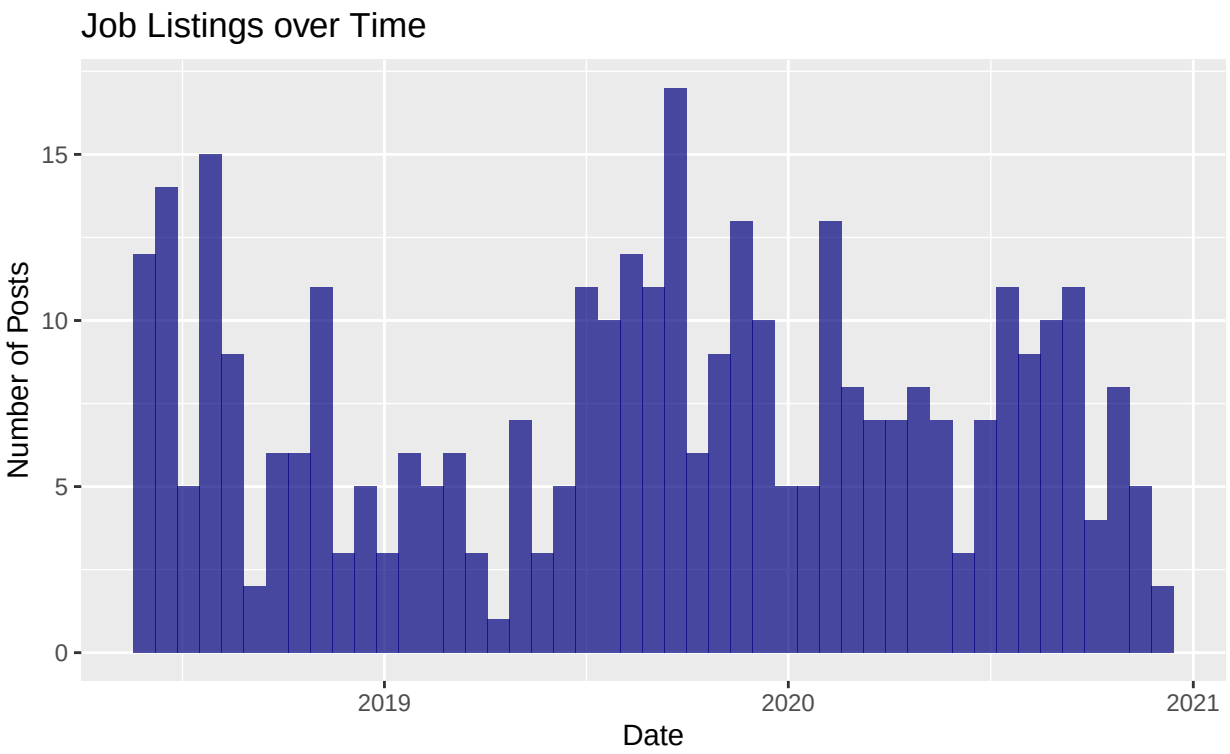
For the data used in this report, I focused on an unconventional data source: the EM DOCS JOBS Facebook group. This group was started in mid-2018 and has about 7200 members who use it as a venue to post jobs and ask for help in finding one. This appealed to me as a data source because 1) it represents an organic and, thus, more honest data set, 2) the page contains information on both employers and potential employees and 3) there is a time-stamped electronic log that is easily accessible.

To perform my analysis, I read each post and personally classified it as either a job posting or a request for employment. There were many posts that were neither and so were not included in the data set. Some posts were difficult to classify, but as a general rule, if it seemed as though the poster was trying to recruit employers, it was classified as a request. A post was classified as a job listing if somebody posted contact info for a job that paid, even if the poster was not the employer. This also meant that I counted job listings for ERs, urgent cares, and med-spas/sports events/speaking engagements/whatever similarly (even though they may not all be considered equal by prospective applicants).

I am not proud to say that, in my excitement over this page as a data source, I read every single post on this page since its inception (from June 6, 2018 to December 14, 2020). It is a horribly depressing read, as you will see below.

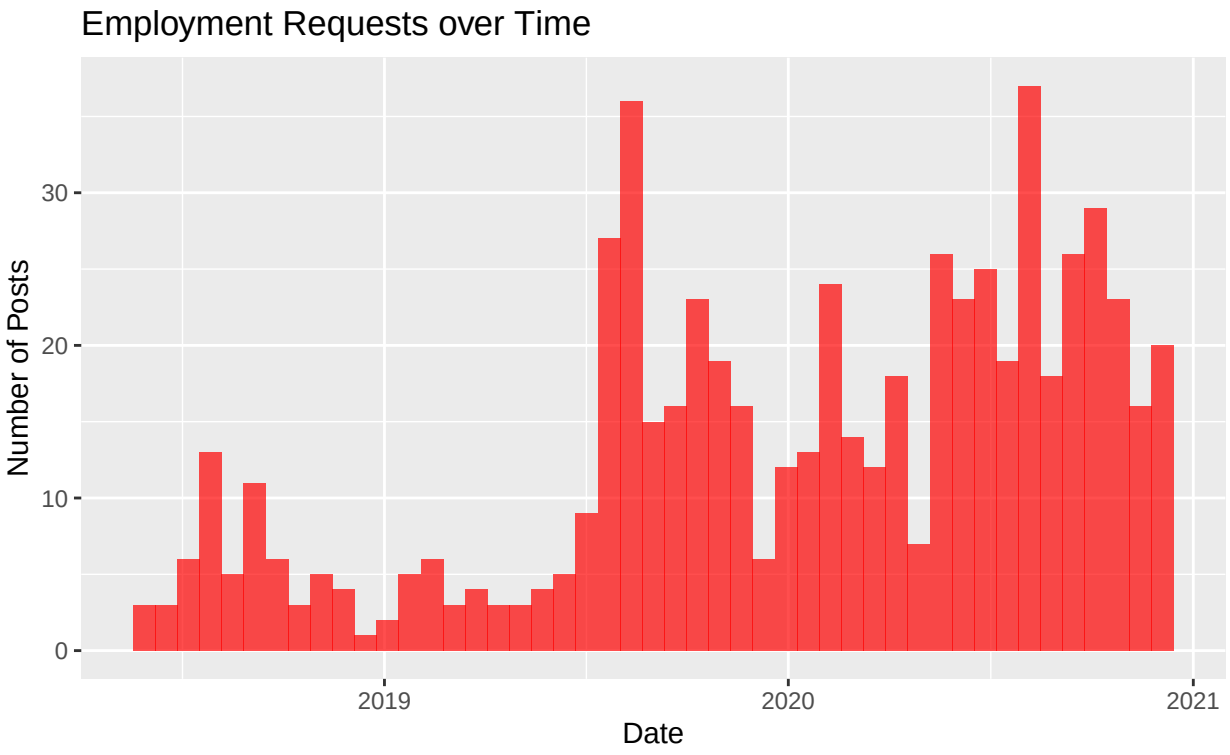
Results

First, let's look at the job listings over life of the group.



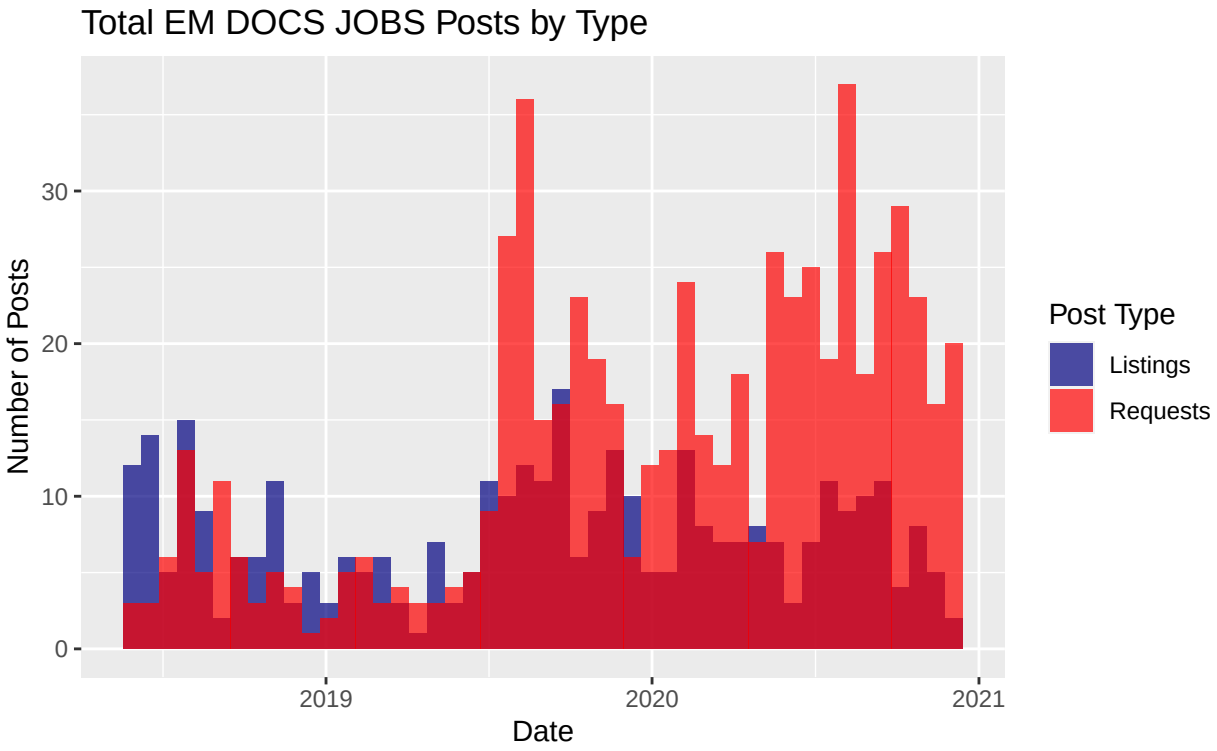
As you can see, job listings appear to show some seasonality with early fall and summer seeming to be most dense. Additionally, job listings do seem to be increasing over time.

Next, let's take a look at requests for employment.



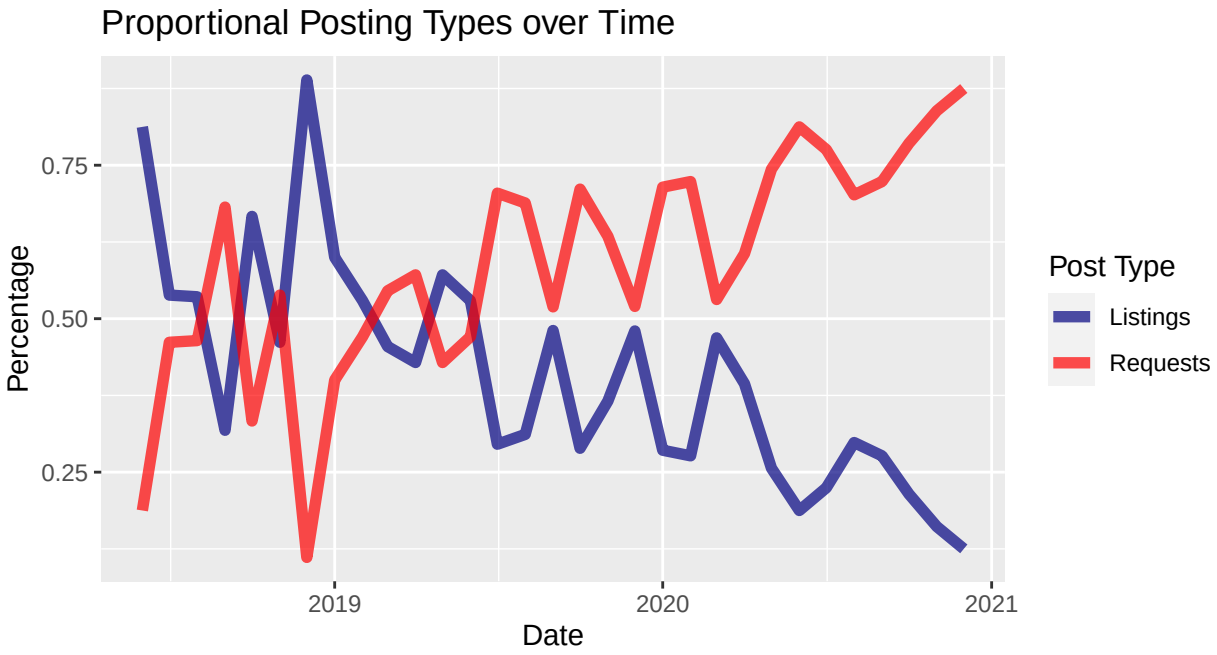
There is some seasonality here, as well. Requests for employment also seem to be increasing over time.

Now let's take these two histograms and transpose them to see how job listings compare to requests for employment over time.



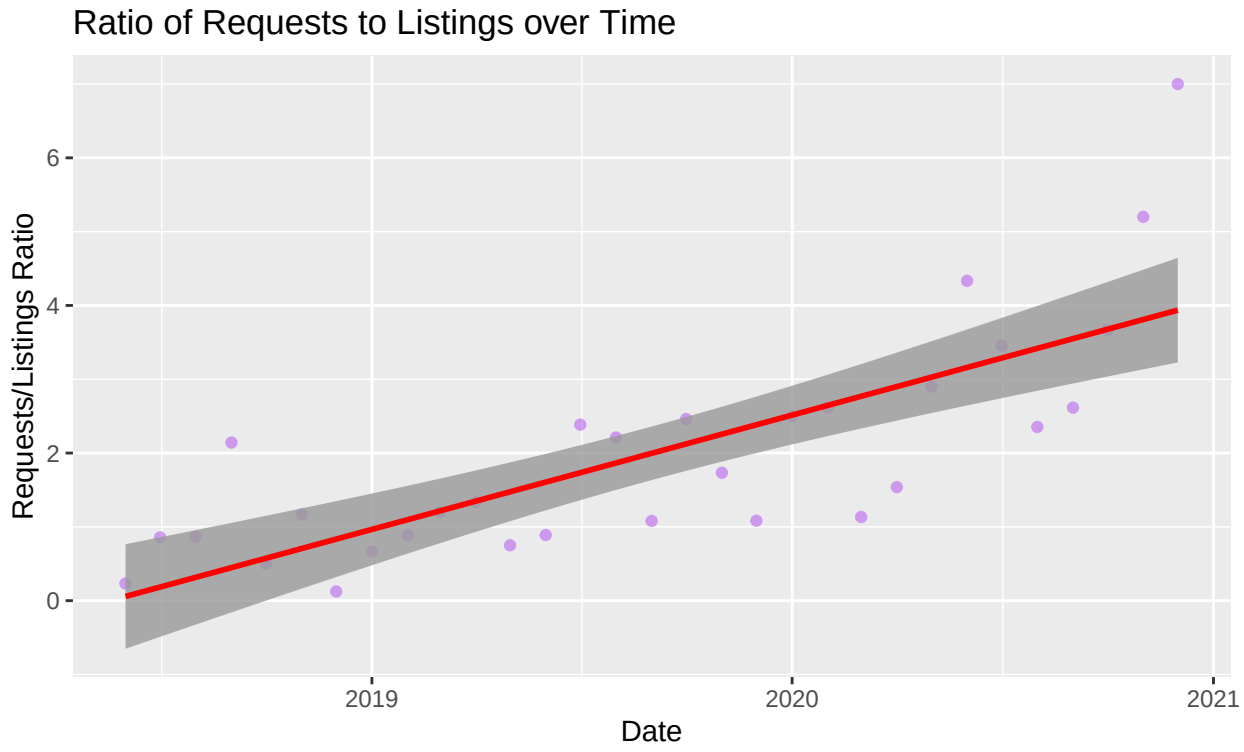
As you can see, job listings and requests seem to match up fairly nicely in mid-2018 through the first part of 2019, at which point a major change seems to occur. After this point, growth in requests for employment seem to far outpace the growth in job listings.

Let's view this another way. Below, I've calculated the percentage of all total posts by type for each month.



This illustrates rather clearly that, while earlier posts to this group were a mix of job listings and requests, the page is now about 90% requests for employment.

It is valid to ask if this trend could simply be statistical noise. The first method we will use to address this question is to rephrase the post counts as ratios of requests to listings, then fit a linear regression line that correlates this ratio to time.



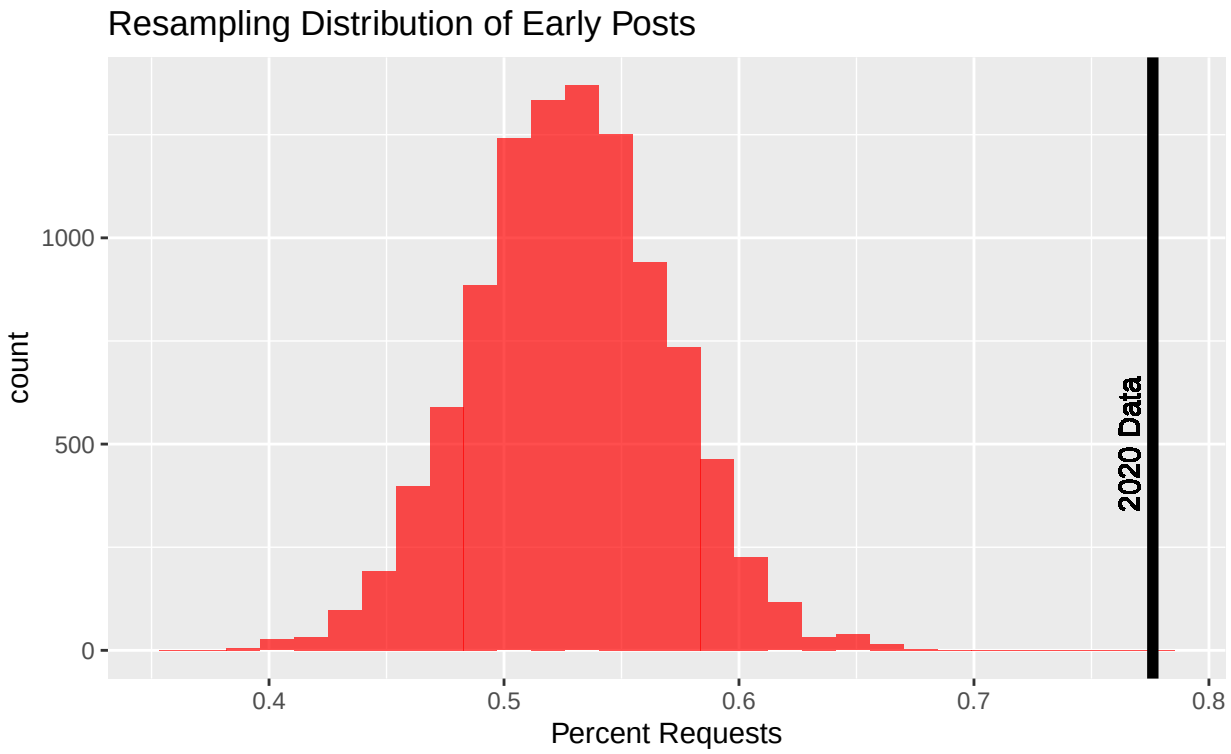

```
##
## Call:
## lm(formula = R.to.L ~ Date, data = jobs_sum)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.63576 -0.71309 -0.01579  0.40278  3.06380
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept) -7.499e+01  1.181e+01  -6.348 6.17e-07 ***
## Date         4.244e-03  6.512e-04   6.517 3.89e-07 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.9878 on 29 degrees of freedom
## Multiple R-squared:  0.5943, Adjusted R-squared:  0.5803
## F-statistic: 42.47 on 1 and 29 DF,  p-value: 3.894e-07

##            2.5 %      97.5 %
## Date 0.002912177 0.005575868
```

Not only does our t-test show statistical significance (indicating that, in the case that there is no correlation

between time and the given ratio, there is an exceedingly low chance of finding the observed data), but our 95% CI shows that we expect the ratio of requests to listings to increase anywhere from 1.06 to 2.04 year over year.

Finally, let's compare the observed data from the page's first months (we will use September through November of 2018) to the same monthly interval this year. Using resampling, we can see how likely it we would be to observe the data in 2020 if there were no difference between the two year periods.



The vertical line representing the percentage of requests in late 2020 does not even touch the resampling distribution. The odds of seeing the current distribution, if, in fact, this is simply statistical noise is 3.4261139×10^{-9}.

Discussion

Membership in this group is not constant. As the number of members increases (as it has done over the years), one would expect that both the number of posts for job listings and requests should increase. This is why the relative composition of the two is more important.

We can easily infer from this data that jobs for emergency physicians are becoming more relatively scarce. In fact, I believe this is the most likely scenario.

There are, of course, other possible scenarios. This data may simply represent a change in the use of the page - more people are using the page to seek jobs than candidates. The data may also reflect a change in recruiting methods away from social media, though this seems unlikely.

Finally, the data may be a reflection of job scarcity due to the COVID-19 pandemic, though this also seems unlikely as the shift toward more requests begins before the months of the pandemic.

Some analysis that I wish I'd done was a look at the quality of job listings. From an unscientific appraisal, the quality of job listings seemed to deteriorate over time, with employers being harder to contact, prices being lower, and true career-focused ER jobs being fewer and further between. I also wish that I'd looked

at which requests for employment appeared to be successful and if there were any common themes in these. Perhaps another day.

For now, though, I think this data will surprise nobody. It is my hope, however, that this data may begin to inspire solutions.

All code was written in R. The code and data may be found at https://github.com/splatton/EMDOCSJobs.