COVID-19 Vaccination Project

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These data sets relate to our question if being a homeowner status and available housing impacts vaccination rates per CA county. While not a perfect representation of SES of cases, this data set will help us elucidate if there is a relationship between the homeowner-related to renter rates and the vaccination rate per county.

We have two data sets, one is of COVID-19 vaccination progress throughout CA provided by the CDPH following vaccine dosage by zip code from 1/5/21 to about present 9/14/21, and the other is demographic info in CA across all counties from the US census data for 2014 to 2019. Below, we read in our libraries, data sets, explore our data sets, and then proceed to clean the data sets.

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Table 1: Summary of CA Housing Across All Counties in 2021

	Total in Use Housing	Renter/Housing Ratio	Owner/Housing Ratio	Renter/Owner Ratio
Min	497.00	0.2311765	0.3575537	0.3006887
1st Quartile	19040.75	0.3426035	0.5753113	0.5211578
Median	70284.50	0.3854496	0.6145504	0.6272347
Mean	216853.41	0.3833366	0.6166634	0.6472471
3rd Quartile	207711.50	0.4246887	0.6573965	0.7381916
Max	3241204.00	0.6424463	0.7688235	1.7967828

Table 1 provides a statistical breakdown of the total in-use housing to total housing, renter to in-use housing ratio, owner to in-use housing ratio, and the renter to owner ratio for the counties in California.

Table 2: Total Number of Renters and Owners in CA in 2021

	Renters	Owners
Total Count	5542127	7035371

Table 2 provides the total renter and owner households in all of California in 2021. There are more owner households than renter households.

Table 3: COVID-19 Vaccination Rate by Renter/Owner Ratio in Top 5 and Bottom 5 Counties in CA in 2021

County	Renter/Owner Ratio	Jan	Feb	March	April	May	June	July	Aug	Sep
SAN FRANCISCO	1.797	0.009	0.048	0.188	0.419	0.618	0.733	0.768	0.789	0.806
LOS ANGELES	1.098	0.008	0.048	0.152	0.318	0.477	0.576	0.622	0.654	0.682
MONTEREY	0.966	0.006	0.033	0.124	0.309	0.489	0.587	0.633	0.664	0.693
SANTA BARBARA	0.899	0.006	0.044	0.139	0.300	0.483	0.569	0.605	0.631	0.656
YOLO	0.894	0.010	0.051	0.177	0.356	0.497	0.595	0.631	0.654	0.676
SIERRA	0.392	0.006	0.082	0.253	0.365	0.276	0.295	0.272	0.333	0.363
NEVADA	0.389	0.005	0.035	0.163	0.311	0.434	0.501	0.529	0.549	0.569
EL DORADO	0.366	0.007	0.050	0.169	0.316	0.426	0.507	0.540	0.563	0.584
AMADOR	0.339	0.006	0.034	0.140	0.292	0.382	0.429	0.449	0.465	0.484
CALAVERAS	0.301	0.006	0.035	0.148	0.278	0.369	0.414	0.435	0.454	0.474

Note. Pink =Top 5 counties & Blue = Bottom 5 counties.

Table 3: This table shows the vaccination rate at the end of each month for the time period provided in the dataset for the top 5 and bottom 5 renter-to-owner ratios and their counties. The table is in descending order of the ratios and as a visual guide, we have color coded specific rows to help split the top 5 from the bottom 5 counties and all of their corresponding data.

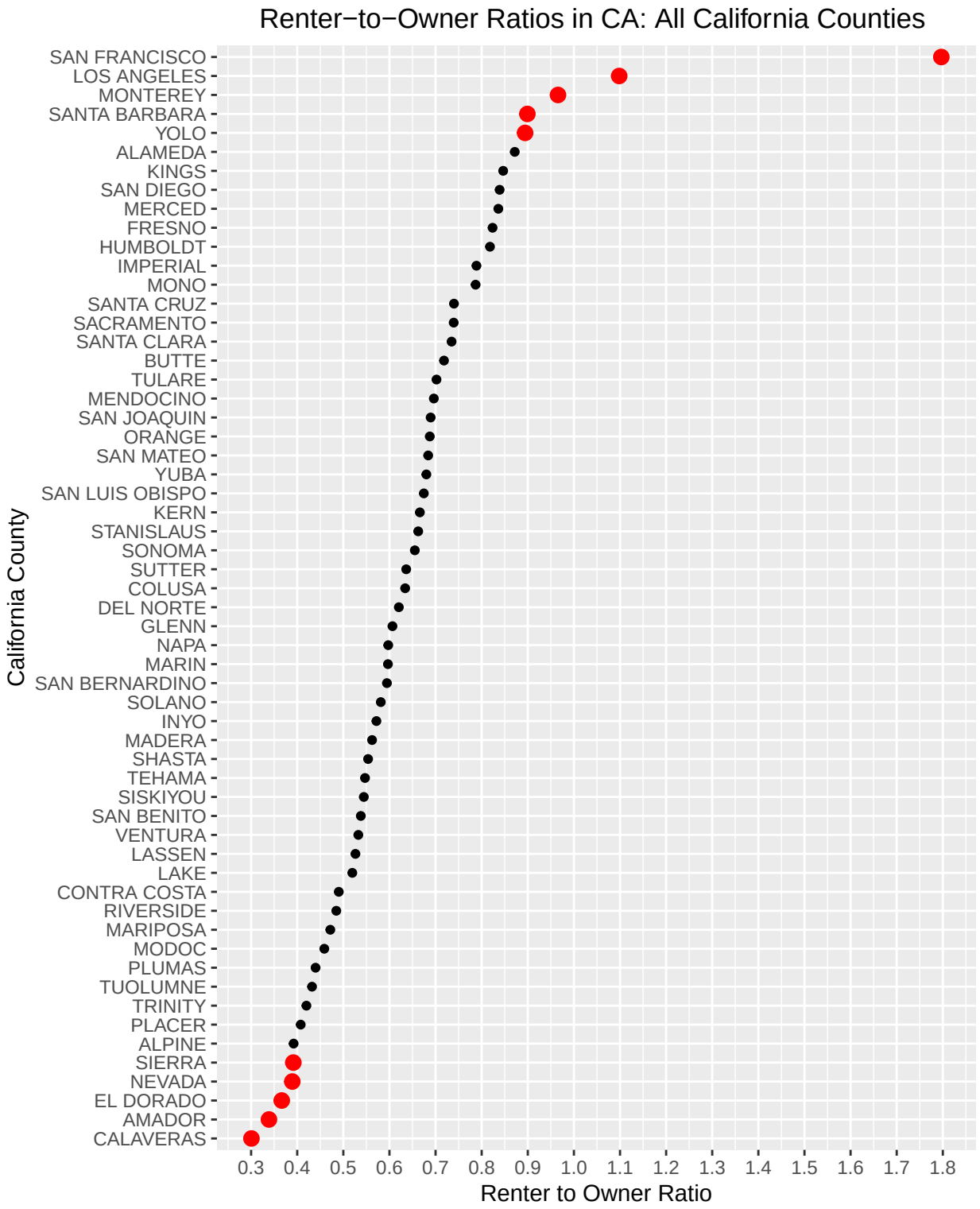

Figure 1: This graph displays the Renter-to-Owner Ratio for every single county in California. Highlighted in red are the top 5 and bottom 5 ratios. We will use their corresponding counties' data for further analysis.

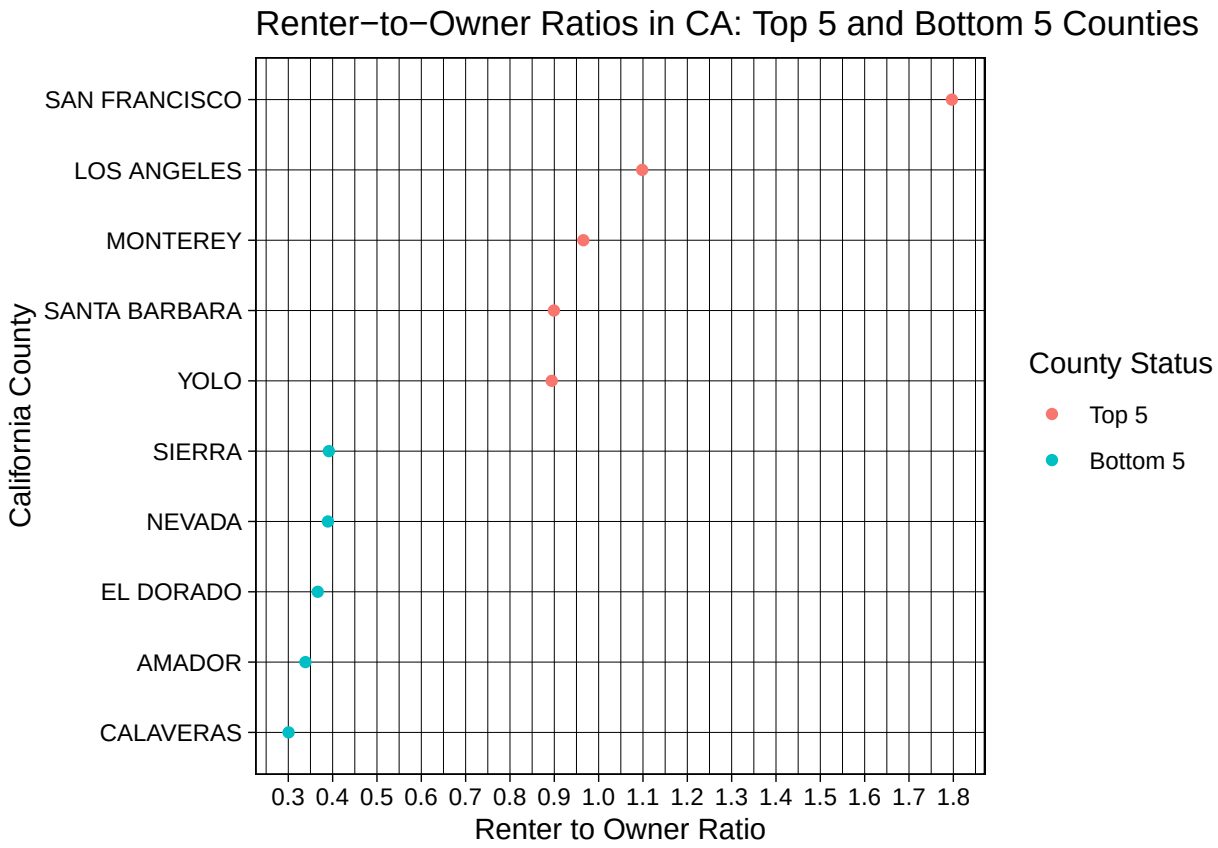

Figure 2: This graph provides a greater visual aid for the disparity of owning a home and the amount of renters for the top 5 and bottom 5 counties. As we would expect, we see a very drastic divide between Sierra county and Yolo county.

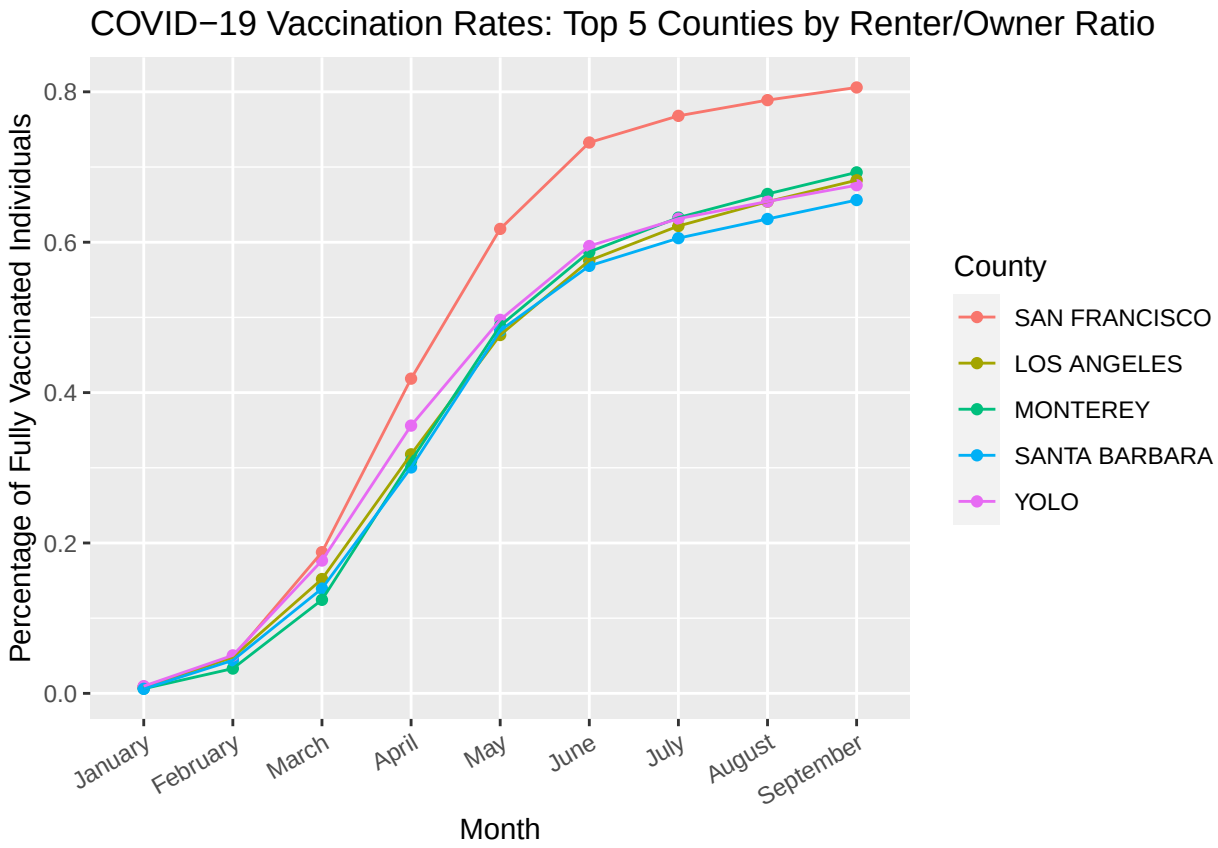

Figure 3: This graph shows the vaccination rates for the top 5 renter-to-owner ratio counties in California over January to September. San Francisco consistently had the highest percentage of fully vaccinated individuals starting in March and reached an astonishing 80% coverage of its "over 12" population. Other counties had a very similar pattern of coverage during this period.

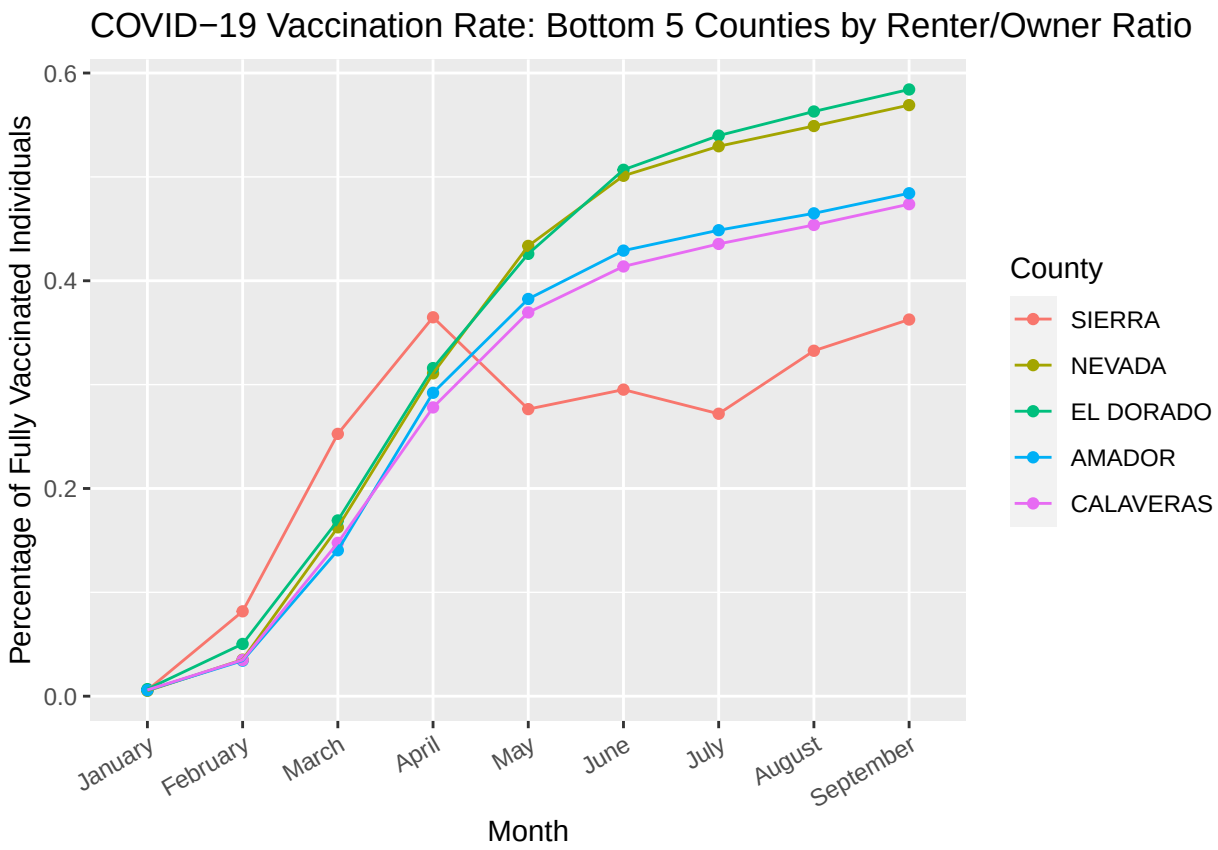

Figure 4: This graph shows the vaccination rates for the bottom 5 renter-to-owner ratio counties over January to September. The Sierra line looks very strange, as we lose coverage. This could potentially be due to low population density and movement out of the county perhaps. We can only speculate with the given data.

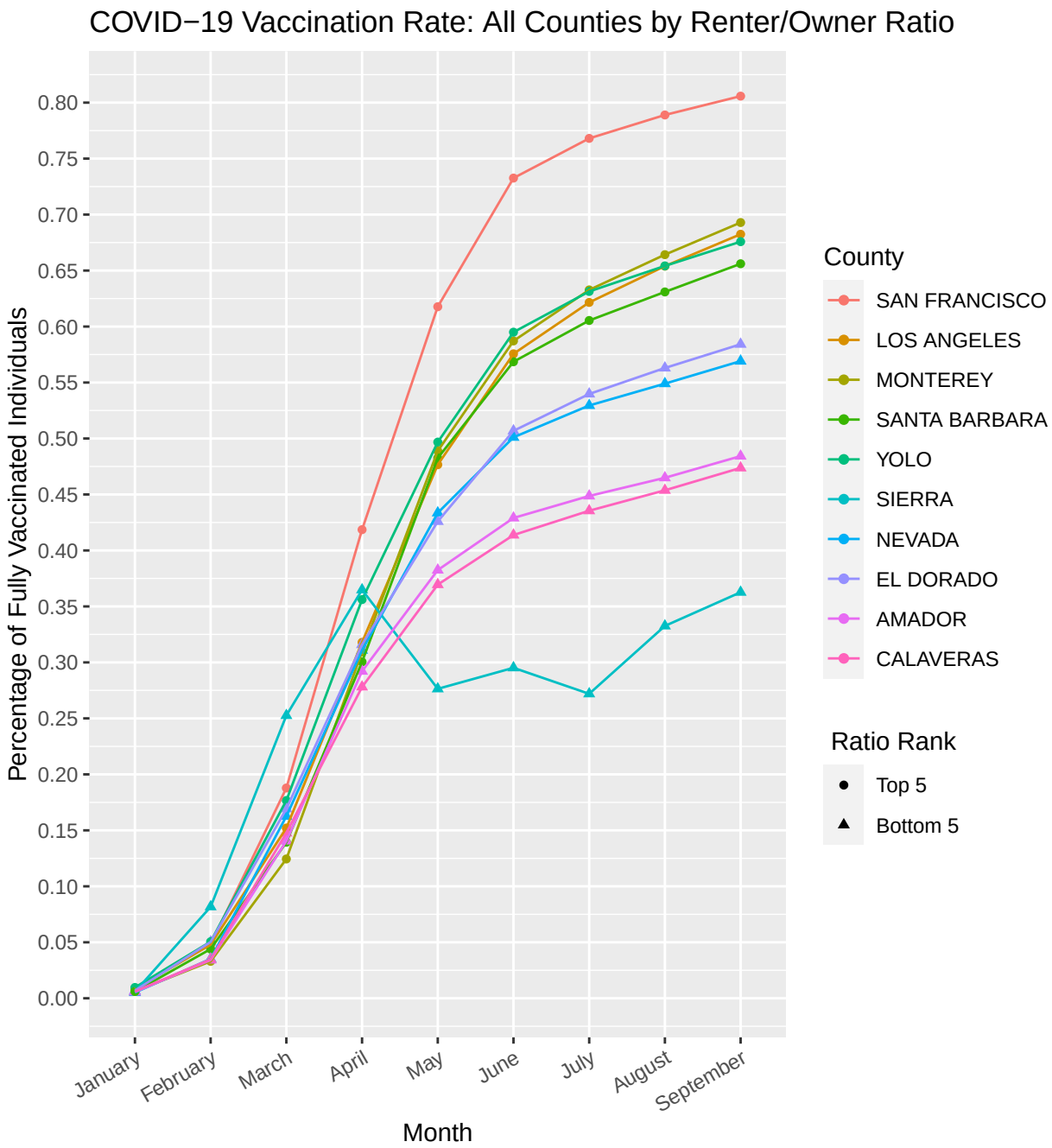

Figure 5: This graph combines the data from Figure 3 and Figure 4 for an easier comparison of vaccination rates over time for each of the top and bottom 5 counties. We see that overall, those counties with the highest renter-to-owner ratios also had the highest vaccination rates for the January-September time period compared to the bottom five renter-to-owner ratio counties. We start to see a divide between the groups after April.