

# COVID Vaccination Project

Adrian Cornejo and Victor Guillera

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## Milestone 2

### Section 1

This data set will 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 trend via linear regression 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.

```
library(readr)
library(knitr)
library(tibble)
library(dplyr)

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##   filter, lag

## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union

library(stringr)
countydem <- read.csv("ca_county_demographics.csv")
covidvax <- read.csv("cov_vax_admin.csv")
```

To import the csv files, we used read\_csv from base R and will inspect our imported files first before we clean our data set. Libraries we loaded in were readr, dplyr, and tibble. We are going to pull variables “persons\_fully\_vaccinated”, “persons\_partially\_vaccinated”, “zip\_code\_tabulation\_area”, “age12\_plus\_population”, and “county” from the covidvax csv file. We will pull “name”, “renter\_occ”, “owner\_occ”, “hse\_units” and “vacant” variables.

```
str(covidvax)
head(covidvax)
nrow(covidvax)
ncol(covidvax)
typeof(covidvax)
class(covidvax)
```

```
distinct(covidvax, as_of_date, .keep_all = F)
```

The structure of the “cov\_vax\_admin” file is a data frame with 11 columns and 65,268 rows. The data frame contains integer, number, and character data types and contains a redacted column that is inaccessible. There are also a total of 27 unique dates, each 7 weeks apart (weekly results).

```
str(countydem)
head(countydem)
nrow(countydem)
ncol(countydem)
typeof(countydem)
class(countydem)
```

The structure of “countydem” reveals a data frame containing 23 columns and 58 rows with integer, character and number data types.

```
#Cleaning the data by removing unnecessary columns, rearranging the data,  
#and removing "N/A" data points.
```

```
#COVID Vaccination Rates
```

```
covidvax2 <- select(covidvax, "county","zip_code_tabulation_area", "as_of_date",  
                    "age12_plus_population", "persons_fully_vaccinated",  
                    "persons_partially_vaccinated")
```

```
names(covidvax2) <- c("county", "zip_code", "date", "total_pop_over_12",  
                     "fully_vaccinated", "partially_vaccinated")
```

```
covidvax2[is.na(covidvax2)] <- 0
```

```
#Using the function str() we see that the selected variables in covidvax2  
#are chr, int, chr, num, num
```

```
#We may need to convert the dates to numeric using the as.numeric() function  
#to determine and compare vaccination rate. All other column types should be  
#fine as is.
```

```
#Converting NA cells to 0 we allow ourselves to manipulate and describe entire  
#numeric columns.
```

```
#Descriptions
```

```
distinct(covidvax2, county, .keep_all = F)
```

```
distinct(covidvax2, date, .keep_all = F)
```

```
distinct(covidvax2, zip_code, .keep_all = F)
```

```
covidvax2 %>% group_by(zip_code) %>%
```

```
  summarise(fullyvax_range = range(fully_vaccinated), partiallyvax_range = range(partially_vaccinated))
```

```
covidvax2 %>%
```

```
  summarise(total_pop_range = range(total_pop_over_12), total_pop_median = median(total_pop_over_12))
```

```
#County Data
```

```
countydem2 <- select(countydem, "name", "renter_occ","owner_occ",  
                      "vacant", "hse_units")
```

```
names(countydem2) <-c("county_name","renters","owners",  
                     "vacant_housing", "total_housing_units")
```

```
countydem2[is.na(countydem2)] <- 0
```

Using the function str() we see that the selected variables in countydem2 are chr, int, int, int, int. All column types should be fine as is for our study question. Converting NA cells to 0 we allow ourselves to manipulate and describe entire numeric columns. We also changed column names to allow for easier/obvious verbiage.

```
#Descriptions
```

```
distinct(covidvax2, county, .keep_all = F)
distinct(covidvax2, date, .keep_all = F)
distinct(covidvax2, zip_code, .keep_all = F)
```

```
covidvax2 %>% group_by(zip_code) %>%
  summarise(fullyvax_range = range(fully_vaccinated), partiallyvax_range = range(partially_vaccinated))
```

Population Range and Median for COVID vaccinations for those over 12 years old.

```
covidvax2 %>% summarise(total_pop_range = range(total_pop_over_12),
  total_pop_median = median(total_pop_over_12))
```

```
#Using the function str() we see that the selected variables
#in countydem2 are chr, int, int, int, int
#All column types should be fine as is for our study question
#Converting NA cells to 0 we allow ourselves to manipulate and describe
#entire numeric columns.
#Changed column names to easier/obvious verbiage
```

```
#Descriptions
```

```
distinct(countydem2, county_name, .keep_all = F)
```

```
##      county_name
## 1      Kern
## 2      Kings
## 3      Lake
## 4      Lassen
## 5    Los Angeles
## 6      Madera
## 7      Marin
## 8    Mariposa
## 9    Mendocino
## 10     Merced
## 11     Modoc
## 12     Mono
## 13    Monterey
## 14     Napa
## 15     Nevada
## 16     Orange
## 17     Placer
## 18     Plumas
## 19    Riverside
## 20    Sacramento
## 21    San Benito
## 22 San Bernardino
## 23    San Diego
## 24 San Francisco
## 25    San Joaquin
## 26 San Luis Obispo
## 27    San Mateo
## 28 Santa Barbara
## 29    Santa Clara
```

```

## 30      Santa Cruz
## 31          Shasta
## 32          Sierra
## 33      Siskiyou
## 34          Solano
## 35      Alameda
## 36          Alpine
## 37          Sonoma
## 38          Amador
## 39      Stanislaus
## 40          Sutter
## 41          Butte
## 42      Calaveras
## 43          Tehama
## 44          Colusa
## 45      Trinity
## 46          Tulare
## 47      Contra Costa
## 48          Del Norte
## 49          Tuolumne
## 50          Ventura
## 51      El Dorado
## 52          Yolo
## 53          Fresno
## 54          Glenn
## 55          Yuba
## 56      Humboldt
## 57      Imperial
## 58          Inyo

countydem2 %>% summarise(renters_mean = mean(renters),
                        owners_mean = mean(owners),
                        vacant_mean = mean(vacant_housing), total_mean = mean(total_housing_units))

##      renters_mean owners_mean vacant_mean total_mean
## 1      95553.91    121299.5    19010.05    235863.5

countydem2 %>% summarise(renters_range = range(renters),
                        owners_range = range(owners),
                        vacant_range = range(vacant_housing), total_range = range(total_housing_units))

##      renters_range owners_range vacant_range total_range
## 1           140           357           827           1760
## 2      1696455      1544749      203872      3445076

#Below, is the minimum, first quartile, median, third quartile, and max values.
fivenum(covidvax2$total_pop_over_12)

## [1]      0.00  1346.80 13685.10 31762.15 88556.70

fivenum(covidvax2$fully_vaccinated)

## [1]      0    189   1867 11637 67594

fivenum(covidvax2$partially_vaccinated)

## [1]      0     93   1033  3028 23195

```

*#Descriptions*

*#We get the mean & range for all numeric and integer vectors in countydem2 below*

```
distinct(countydem2, county_name, .keep_all = F)
```

```
countydem2 %>%  
  summarise(renters_mean = mean(renters),  
            owners_mean = mean(owners),  
            vacant_mean = mean(vacant_housing),  
            total_mean = mean(total_housing_units))
```

```
##   renters_mean owners_mean vacant_mean total_mean  
## 1    95553.91   121299.5   19010.05   235863.5
```

```
countydem2 %>%  
  summarise(renters_range = range(renters),  
            owners_range = range(owners),  
            vacant_range = range(vacant_housing),  
            total_range = range(total_housing_units))
```

```
##   renters_range owners_range vacant_range total_range  
## 1         140         357         827         1760  
## 2    1696455    1544749    203872    3445076
```

Below, we get the five number summary for data of interest in countydem2.

```
fivenum(countydem2$renters)
```

```
## [1]    140    5878   25140   87737 1696455
```

```
fivenum(countydem2$owners)
```

```
## [1]    357   12629   39306  123646 1544749
```

```
fivenum(countydem2$vacant_housing)
```

```
## [1]    827.0   3328.0   8580.5  18747.0 203872.0
```

```
fivenum(countydem2$total_housing_units)
```

```
## [1]   1760.0   23910.0   76183.5  233755.0 3445076.0
```

## Milestone 3

*#Covid Vaccination by County data manipulation (covidvax files)*

```
unique(covidvax2$county)
```

```
## [1] "ORANGE"          "SAN BERNARDINO"  "IMPERIAL"        "RIVERSIDE"
## [5] "LOS ANGELES"     "SAN DIEGO"      "TRINITY"         "SAN FRANCISCO"
## [9] "TULARE"          "MARIN"          "CONTRA COSTA"    "KERN"
## [13] "VENTURA"        "SANTA BARBARA"  "SAN MATEO"       "SOLANO"
## [17] "FRESNO"          "MONTEREY"       "SONOMA"          "NAPA"
## [21] "ALAMEDA"         "MADERA"         "KINGS"           "INYO"
## [25] "SACRAMENTO"      "SAN LUIS OBISPO" "SANTA CLARA"     "EL DORADO"
## [29] "GLENN"           "YUBA"           "BUTTE"           "PLACER"
## [33] "AMADOR"          "SUTTER"         "MONO"            "LAKE"
## [37] "YOLO"            "HUMBOLDT"       "SAN JOAQUIN"     "TUOLUMNE"
## [41] "CALAVERAS"       "SHASTA"         "O"               "SISKIYOU"
## [45] "LASSEN"          "MERCED"         "SANTA CRUZ"      "SAN BENITO"
## [49] "MODOC"           "STANISLAUS"     "MENDOCINO"       "SIERRA"
## [53] "TEHAMA"          "PLUMAS"         "MARIPOSA"        "DEL NORTE"
## [57] "NEVADA"          "ALPINE"         "COLUSA"
```

```
covidvax2 <- covidvax2 %>% filter(county!="O")
```

```
unique(covidvax2$date)
```

```
## [1] "2021-01-05" "2021-01-12" "2021-01-19" "2021-01-26" "2021-02-02"
## [6] "2021-02-09" "2021-02-16" "2021-02-23" "2021-03-02" "2021-03-09"
## [11] "2021-03-16" "2021-03-23" "2021-03-30" "2021-04-06" "2021-04-13"
## [16] "2021-04-20" "2021-04-27" "2021-05-04" "2021-05-11" "2021-05-18"
## [21] "2021-05-25" "2021-06-01" "2021-06-08" "2021-06-15" "2021-06-22"
## [26] "2021-06-29" "2021-07-06" "2021-07-13" "2021-07-20" "2021-07-27"
## [31] "2021-08-03" "2021-08-10" "2021-08-17" "2021-08-24" "2021-08-31"
## [36] "2021-09-07" "2021-09-14"
```

```
covidvax3 <- covidvax2 %>%
  mutate(month = case_when(
    str_detect(date, "-01-") == T ~ "January",
    str_detect(date, "-02-") == T ~ "February",
    str_detect(date, "-03-") == T ~ "March",
    str_detect(date, "-04-") == T ~ "April",
    str_detect(date, "-05-") == T ~ "May",
    str_detect(date, "-06-") == T ~ "June",
    str_detect(date, "-07-") == T ~ "July",
    str_detect(date, "-08-") == T ~ "August",
    str_detect(date, "-09-") == T ~ "September"
  ))
```

```
unique(covidvax3$month)
```

```
## [1] "January" "February" "March"    "April"   "May"     "June"
## [7] "July"    "August"   "September"
```

```
covidvax4 <- covidvax3 %>%
  group_by(county,month)%>%
  mutate(county_total_pop_over12 = sum(total_pop_over_12)) %>%
  mutate(county_fully_vaccinated = sum(fully_vaccinated)) %>%
  mutate(county_partially_vaccinated = sum(partially_vaccinated))

covidvax4 <- covidvax4 %>%
  select(-"zip_code",-"total_pop_over_12",-"fully_vaccinated",
        -"partially_vaccinated")

#Ensuring we get the last date for each month's final total vaccinations

unique(covidvax4$date)
```

```
## [1] "2021-01-05" "2021-01-12" "2021-01-19" "2021-01-26" "2021-02-02"
## [6] "2021-02-09" "2021-02-16" "2021-02-23" "2021-03-02" "2021-03-09"
## [11] "2021-03-16" "2021-03-23" "2021-03-30" "2021-04-06" "2021-04-13"
## [16] "2021-04-20" "2021-04-27" "2021-05-04" "2021-05-11" "2021-05-18"
## [21] "2021-05-25" "2021-06-01" "2021-06-08" "2021-06-15" "2021-06-22"
## [26] "2021-06-29" "2021-07-06" "2021-07-13" "2021-07-20" "2021-07-27"
## [31] "2021-08-03" "2021-08-10" "2021-08-17" "2021-08-24" "2021-08-31"
## [36] "2021-09-07" "2021-09-14"
```

```
covidvax4 <- covidvax4 %>% filter(date == "2021-01-26" | date == "2021-02-23" |
                                date == "2021-03-30" |
                                date == "2021-04-27" |
                                date == "2021-05-25" |
                                date == "2021-06-29" |
                                date == "2021-07-27" |
                                date == "2021-08-31" |
                                date == "2021-09-14")
```

*#Removing duplicate columns after combining the zip codes for each county  
#and making column totals for each . Then we check to ensure we have 58 counties  
#for each month.*

```
covidvax5 <- covidvax4 %>% distinct(county,month, .keep_all=T)

covidvax5 %>% group_by(month) %>% summarise(n())
```

```
## # A tibble: 9 x 2
##   month      'n()'
##   <chr>      <int>
## 1 April         58
## 2 August        58
## 3 February      58
## 4 January       58
## 5 July          58
## 6 June          58
## 7 March         58
## 8 May           58
## 9 September     58
```



```
covidvax5 <- covidvax5 %>%
mutate(county_percent_fullvax =
(county_fully_vaccinated)/(county_total_pop_over12)) %>%
mutate(county_percent_partialvax =
(county_partially_vaccinated)/(county_total_pop_over12))
```

```
#Checking that our percentages make sense.
summary(covidvax5$county_percent_fullvax)
```

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## 0.0000 0.1246 0.3662 0.3440 0.5118 0.8609
```

```
summary(covidvax5$county_percent_partialvax)
```

```
##      Min. 1st Qu.  Median      Mean 3rd Qu.      Max.
## 0.00000 0.06396 0.08420 0.09282 0.12036 0.24445
```

County Demographic Data Editing

```
countydem3 <- countydem2 %>%
  mutate(total_in_use_housing = total_housing_units - vacant_housing) %>%
  mutate(renter_housing_prop = (renters/(total_in_use_housing))) %>%
  mutate(owner_housing_prop = (owners/(total_in_use_housing))) %>%
  mutate(renter_owner_ratio = renters/owners)
```

#Data Dictionary

```
str(countydem3)
str(covidvax5)
```

#County Demographics Data Set

Name: county\_name Data type: character Description: A list of all 58 counties in California.

Name:renters Data type: integer Description: Number of renters in each county in California.

Name:owners Data type: integer Description: Number of owners in each county in California.

Name:vacant\_housing Data type: integer Description: Number of empty homes in each county in California.

Name:total\_housing\_units Data type: integer Description: Number of total homes in each county in California.

Name:total\_in\_use\_housing Data type: integer Description: Number of total homes currently in use in each county in California.

Name:renter\_housing\_prop Data type: number Description: Proportion of renters living in occupied homes in each county in California.

Name:owner\_housing\_prop Data type: number Description: Proportion of home owners living in occupied homes in each county in California.

Name:renter\_owner\_ratio Data type: number Description: Renter to Home owner ratio for each county in California.

## #Covid Vaccination Rate Data Set

Name:county Data type: character Description: A list containing the 58 counties in California.

Name:date Data type: character Description:The dates when the data was compiled, ranging from January 5, 2021 to September 14, 2021.

Name:month Data type: character Description: The month in which the testing took place. Created to more easily combine data from specific dates into monthly variables for each county in the future.

Name:county\_total\_pop\_over12 Data type: number Description: Total population over the age of 12 years old in each county in California for a specific month.

Name:county\_fully\_vaccinated Data type: number Description: Total number of people fully vaccinated over the age of 12 in each county in California for a specific month.

Name:county\_fully\_vaccinated Data type: number Description: Total number of people fully vaccinated over the age of 12 in each county in California for a specific month.

Name:county\_partially\_vaccinated Data type: number Description: Total number of people partially vaccinated over the age of 12 in each county in California for a specific month.

Name:county\_percent\_fullvax Data type: number Description: Percentage of people fully vaccinated over the age of 12 over the total population over 12 years old in each county in California for a specific month.

Name:county\_percent\_partialvax Data type: number Description: Percentage of people partially vaccinated over the age of 12 over the total population over 12 years old in each county in California for a specific month.

## Descriptive Statistics Tables

```
descstatsdem <- countydem3 %>%
  summarise(total_in_use_housing_range = summary(total_in_use_housing),
            renter_housing_ratio_range = summary(renter_housing_prop),
            owner_housing_ratio_range = summary(owner_housing_prop),
            renter_owner_ratio_range = summary(renter_owner_ratio))
rownames(descstatsdem) <- c("Min", "1st Quartile", "Median", "Mean", "3rd Quartile", "Max")

descstatsdem2 <- countydem3 %>%
  summarise(total_renters = sum(renters),
            total_owners = sum(owners))
rownames(descstatsdem2) <- c("Total Count")

library(kableExtra)

##
## Attaching package: 'kableExtra'

## The following object is masked from 'package:dplyr':
##
##   group_rows

countydem_kable <- kable(descstatsdem, longtable=T, booktabs=T,
                        col.names = c("Total in Use Housing", "Renter/Housing Ratio",
                                      "Owner/Housing Ratio", "Renter/Owner Ratio"),
                        caption = "Summary of CA Housing Across All Counties in 2021")
countydem_kable
```

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

```
countydem_kable2 <- kable(descstatsdem2, longtable=T, booktabs=T,
                        col.names = c("Renters", "Owners"),
                        caption = "Total Number of Renters and Owners in CA in 2021")
countydem_kable2
```

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

	Renters	Owners
Total Count	5542127	7035371

*#does not make sense to visualize covidvax dataset in a kable, will update visualization  
#with graph using ggplot in milestone 4*

## Milestone 4

```
#Creating a combined data set.

countydem3$county_name <- toupper(countydem3$county_name)

combined <- right_join(countydem3, covidvax5, by=c("county_name" = "county"))

countydem4 <- countydem3 %>% arrange(desc(renter_owner_ratio))

countydem4subset <- countydem4 %>% slice(1:5, 54:58)

countydem4subset$county_name <- factor(countydem4subset$county_name,
                                       levels = countydem4subset$county_name[order(10:1)])

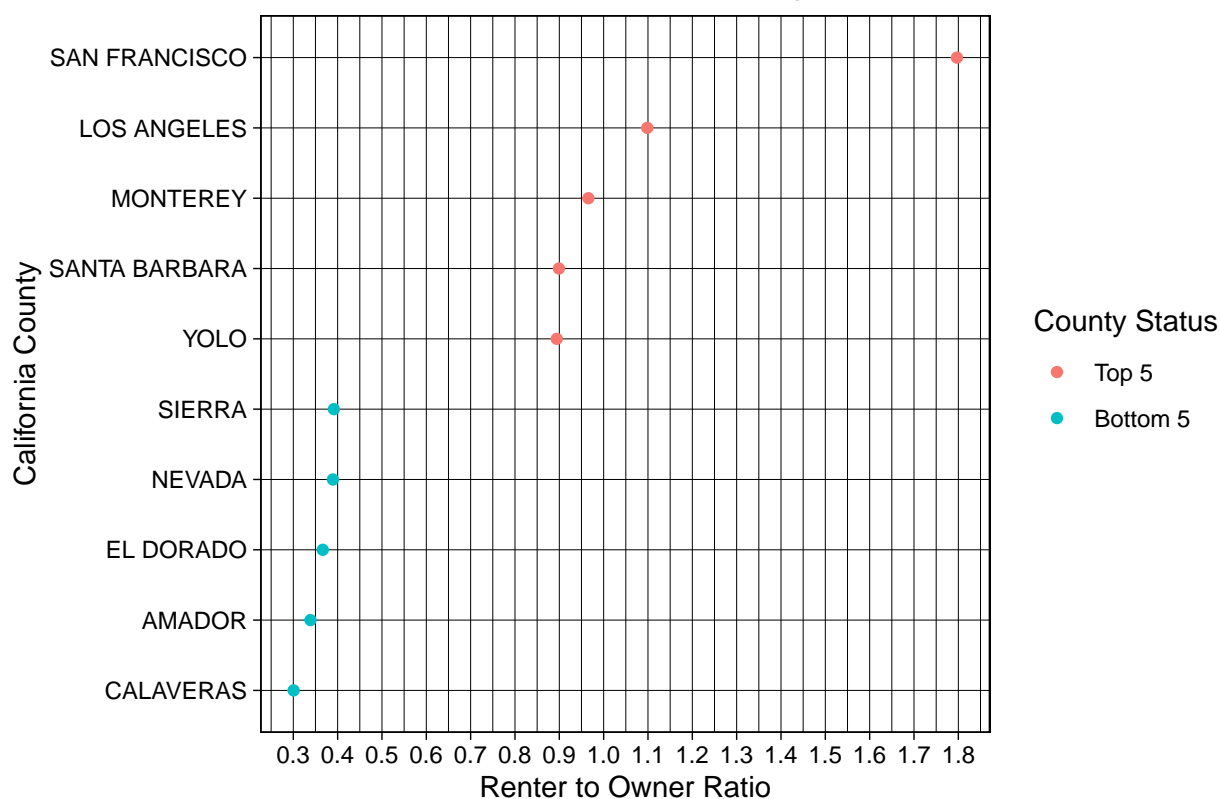
countydem4subset <- countydem4subset %>%
  mutate(status =
    case_when(
      renter_owner_ratio >= 0.75 ~ "Top 5",
      renter_owner_ratio < 0.75 ~ "Bottom 5"
    ))
countydem4subset$status <- factor(countydem4subset$status,
                                 levels = c("Top 5", "Bottom 5"))

library(ggplot2)

#Graph 1 creation

countydem4subset %>% ggplot(aes(y= county_name, x=renter_owner_ratio)) +
  geom_point(aes(color=status)) +
  labs(x = "Renter to Owner Ratio",
       title= "Renter-to-Owner Ratios in CA: Top 5 and Bottom 5 Counties ",
       y ="California County", fill ="Rank",
       color="County Status") +
  scale_x_continuous(breaks=seq(0,2,0.10)) +
  theme_linedraw()
```

## Renter-to-Owner Ratios in CA: Top 5 and Bottom 5 Counties



*#Graph 2 creation*

```
covidvax6top5 <- covidvax5 %>% filter(county == "SAN FRANCISCO" |
                                     county == "LOS ANGELES" |
                                     county == "MONTEREY" |
                                     county == "SANTA BARBARA" |
                                     county == "YOLO")
```

```
covidvax6top5 <- covidvax6top5 %>% select(-c(county_total_pop_over12,
                                             county_fully_vaccinated,
                                             county_partially_vaccinated))
```

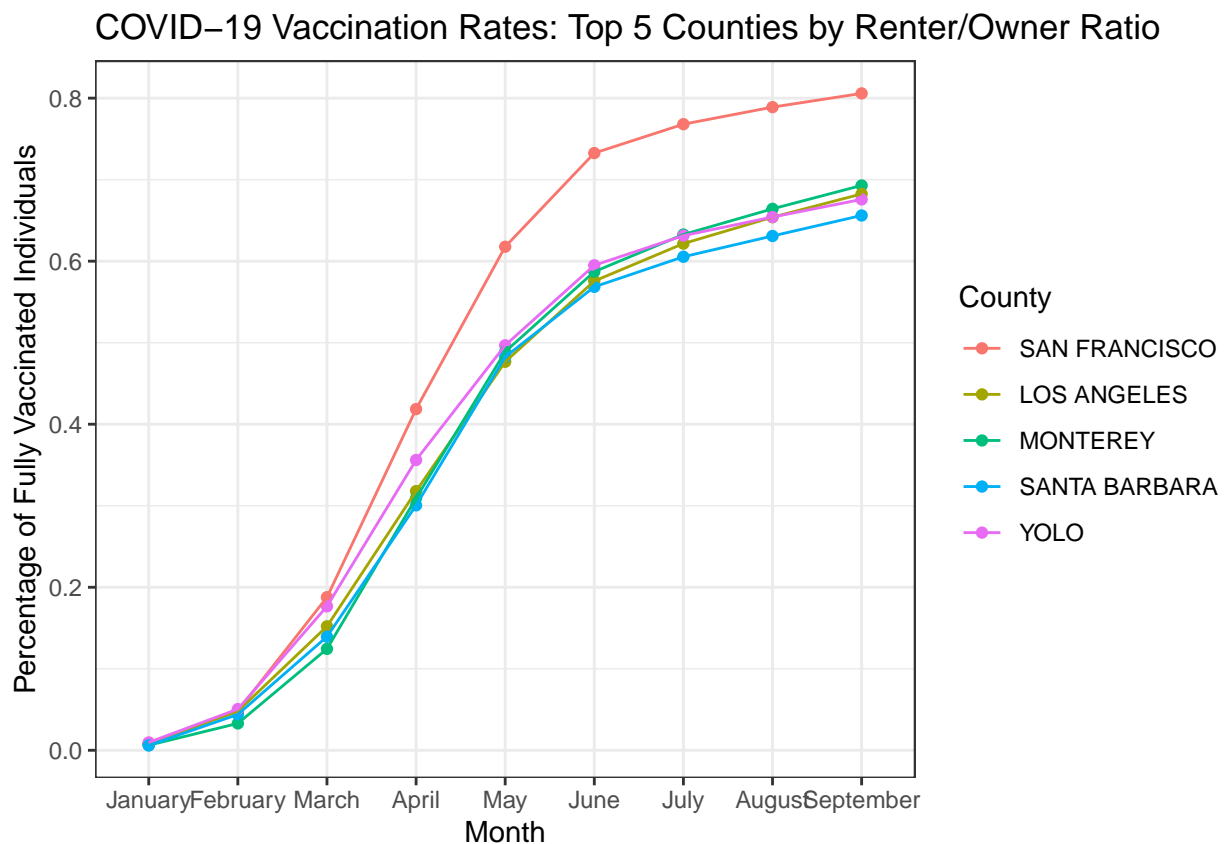
```
covidvax6bottom5 <- covidvax5 %>% filter(county == "SIERRA" |
                                         county == "NEVADA" |
                                         county == "EL DORADO" |
                                         county == "AMADOR" |
                                         county == "CALAVERAS")
```

```
covidvax6bottom5 <- covidvax6bottom5 %>% select(-c(county_total_pop_over12,
                                                    county_fully_vaccinated,
                                                    county_partially_vaccinated))
```

```
covidvax6top5$month <- factor(covidvax6top5$month,
                              levels = c("January", "February", "March",
                                           "April", "May", "June", "July",
                                           "August", "September", "October",
                                           "November", "December"))
```

```
covidvax6top5$county <- factor(covidvax6top5$county,
                               levels = c("SAN FRANCISCO", "LOS ANGELES",
                                             "MONTEREY", "SANTA BARBARA",
                                             "YOLO"))

ggplot(data = covidvax6top5, aes(x=month, y=county_percent_fullvax,
                                color = county, group = county)) +
  geom_point() +
  geom_line() +
  labs(x="Month", y="Percentage of Fully Vaccinated Individuals",
       title="COVID-19 Vaccination Rates: Top 5 Counties by Renter/Owner Ratio",
       color="County") +
  theme_bw()
```

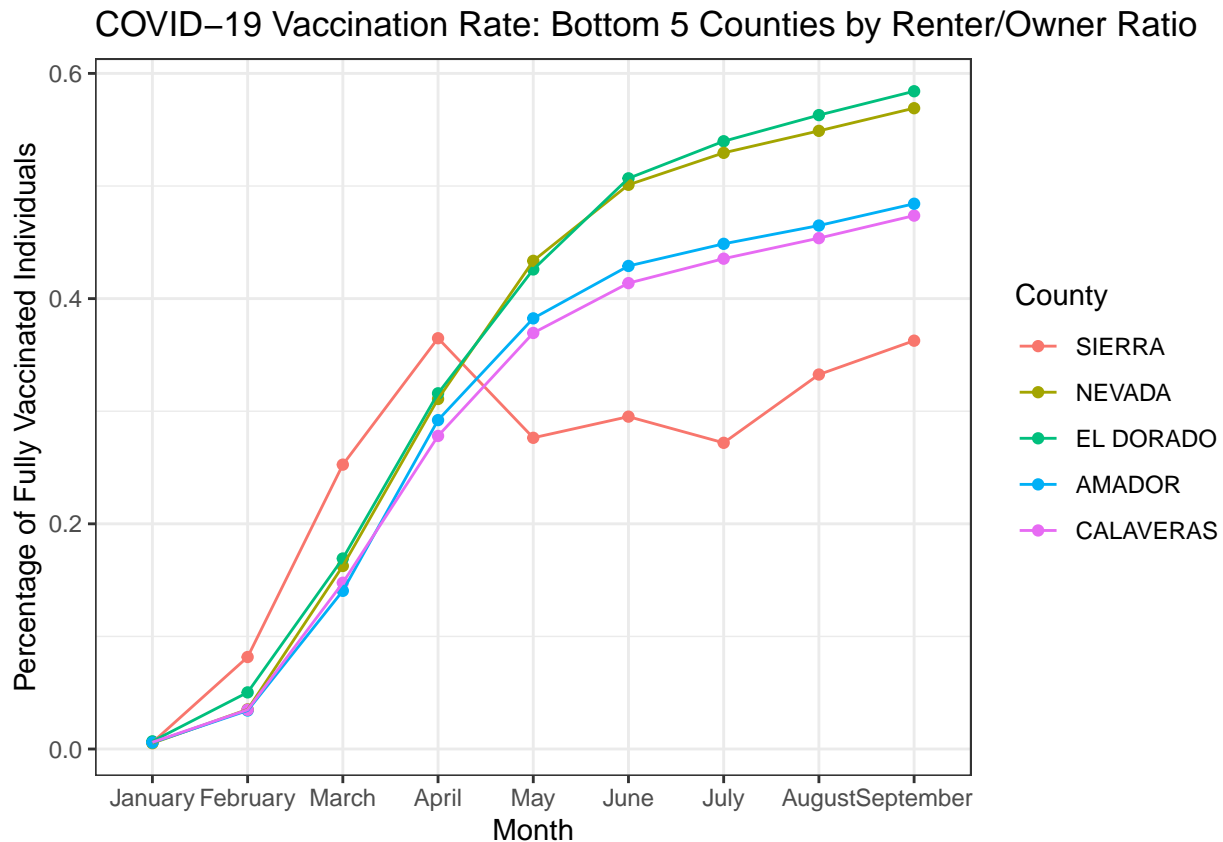


```
covidvax6bottom5$month <- factor(covidvax6bottom5$month,
                                  levels = c("January", "February", "March",
                                                "April", "May", "June", "July",
                                                "August", "September", "October",
                                                "November", "December"))

covidvax6bottom5$county <- factor(covidvax6bottom5$county,
                                  levels = c("SIERRA", "NEVADA",
                                                "EL DORADO", "AMADOR",
                                                "CALAVERAS"))

ggplot(data = covidvax6bottom5, aes(x=month, y=county_percent_fullvax,
                                    color = county, group = county)) +
```

```
geom_point() +
geom_line() +
labs(x="Month", y="Percentage of Fully Vaccinated Individuals",
     title="COVID-19 Vaccination Rate: Bottom 5 Counties by Renter/Owner Ratio",
     color="County") +
theme_bw()
```



#Table

```
combined <- combined %>% filter(county_name == "SAN FRANCISCO" |
                                county_name == "LOS ANGELES" |
                                county_name == "MONTEREY" |
                                county_name == "SANTA BARBARA" |
                                county_name == "YOLO" |
                                county_name == "SIERRA" |
                                county_name == "NEVADA" |
                                county_name == "EL DORADO" |
                                county_name == "AMADOR" |
                                county_name == "CALAVERAS") %>%
  select(county_name, month, renter_owner_ratio, county_percent_fullvax)

library(tidyr)

combined1 <- combined %>% pivot_wider(names_from = month,
                                       values_from = county_percent_fullvax)

combined1 <- combined1 %>% arrange(-desc(renter_owner_ratio))
```



```

combined2 <- combined1 %>% mutate_if(is.numeric, round, digits = 3)

combined_kable <- kable(combined2, longtable=T, booktabs=T,
  col.names = c("County", "Renter/Owner Ratio",
    "Jan", "Feb", "March", "April", "May", "June",
    "July", "Aug", "Sep"),
  caption = "COVID-19 Vaccination Rate by Renter/Owner
    Ratio in Top 5 and Bottom 5 Counties in CA in 2021") %>%
  #kable_styling() %>%
  #pack_rows("Bottom 5", 1,5) %>%
  #pack_rows("Top 5", 6,10)

combined_kable

```

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