sp22_poa_financial_security

Arielle Herman

6/10/2022

Contents

Financial Security [run gender, family, race, borough]

Income Distribution

```
categories <- attributes(wrangled$inc_after)$labels

wrangled %>%
  select(inc_before, inc_after) %>%
  count(inc_before) %>%
  mutate(across(where(is.labelled), labelled::to_character, .names = "{col}_label"))
```

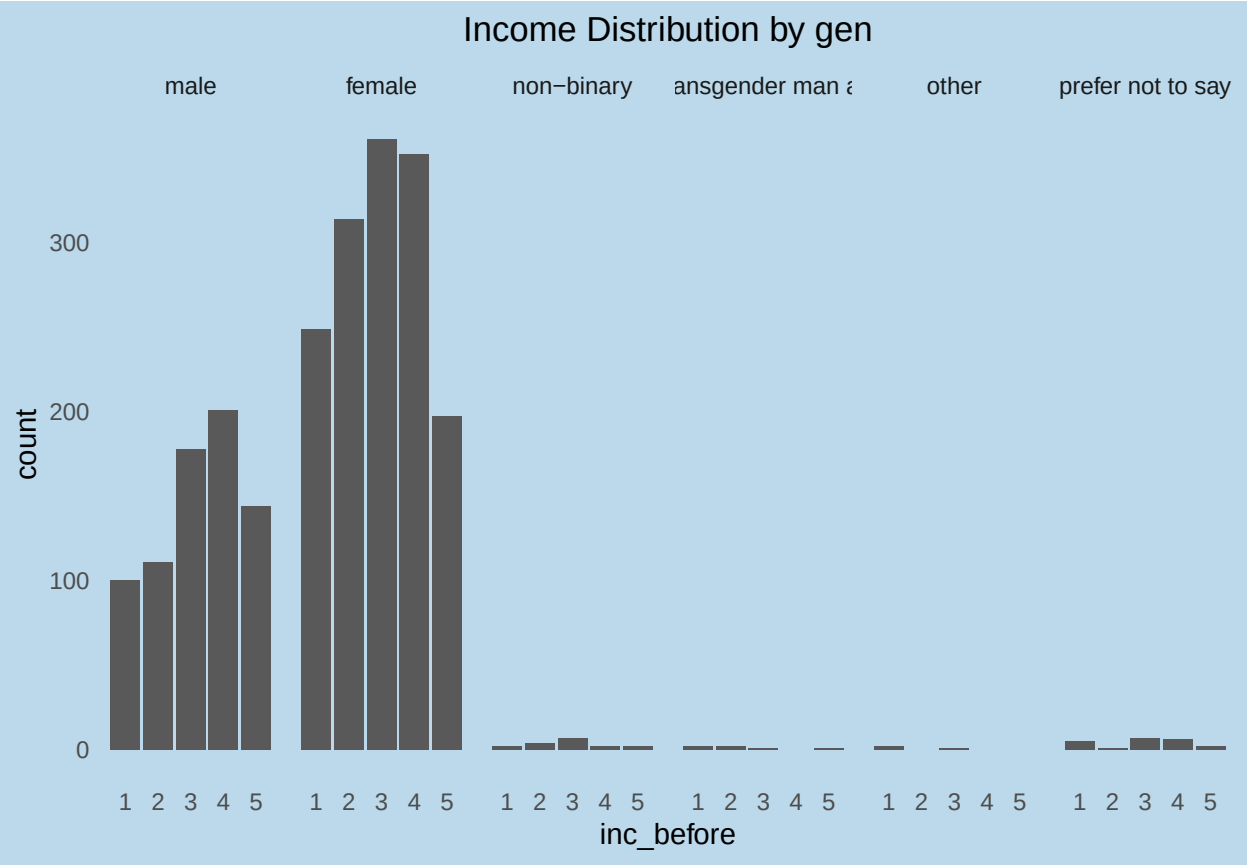
```
## # A tibble: 6 x 3
##                inc_before     n inc_before_label
##                 <int+lbl> <int> <chr>
## 1  1 [under $12,500]        360 under $12,500
## 2  2 [$12,500 - $36,500]    432 $12,500 - $36,500
## 3  3 [$36,501 - $69,500]    555 $36,501 - $69,500
## 4  4 [$69,501 - $139,000]   561 $69,501 - $139,000
## 5  5 [$139,001 or above]    346 $139,001 or above
## 6 NA                         61 <NA>
```

```r
arranged <- tibble(range = names(categories)) %>%
  left_join(wrangled %>% mutate(range = labelled::to_character(inc_before)) %>%
              count(range, inc_before)) %>%
  mutate(range = str_replace_all(range, c("under" = "$0 -", "or above" = "- $400,001+"))) %>%
  separate(col = range, into = c("min", "max"), sep = " - ", remove = FALSE) %>%
  mutate(across(min:max, ~as.double(str_replace_all(., "\\$|,|\\+", "")))) %>%

  na.omit()# come back to top bracket later

inc_dist_plot <- arranged %>%

  ggplot(aes(y = reorder(range, max), alpha = n), show.legend = FALSE) +
  #geom_col(aes(x = max)) +
  geom_linerange(aes(xmin = min, xmax = max, size = n), color = project_pal[4], show.legend = FALSE) +
  geom_vline(xintercept = c(35000, 69500),
             #labels = c("poverty line", "median income"),
             lty = "dashed") +
  geom_text(aes(x = max, label = n), hjust = -0.2, color = project_pal[4], size = 3, show.legend = FALSE
  scale_x_continuous(labels = scales::dollar) +
  #annotate("text", x = 0, y = c(poverty_line), label = c("Respondents\nBelow Poverty Line"))
  #geom_jitter(data = wrangled, aes(x = ))
  ylab("Income Bracket\n") + xlab("\nIncome Range") +
  ggtitle("Respondent Income Distribution\n")

inc_dist_plot
```

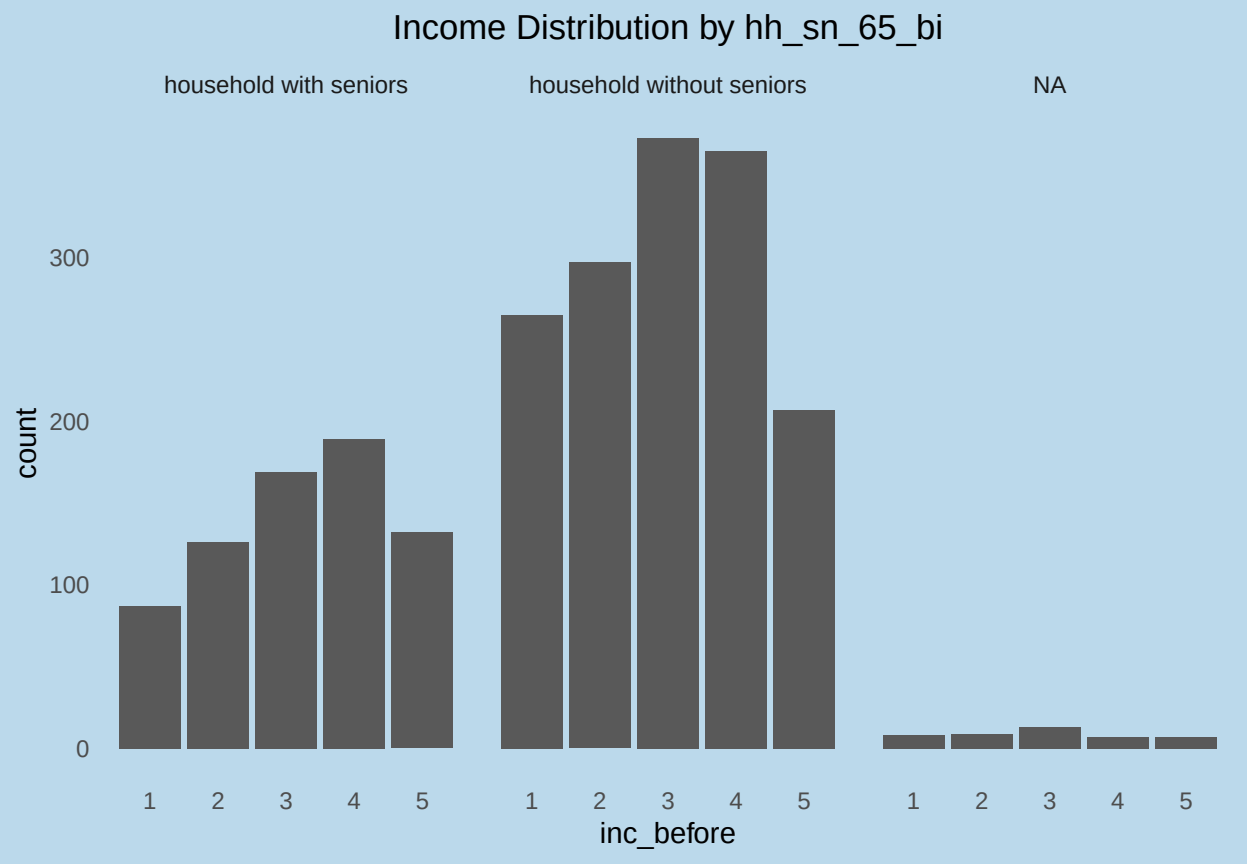
Income Distribution by Demographic

```
lapply(fin_sec_dem, function(facet) {
  sym_facet <- sym(facet)
  wrangled %>% select(inc_before, !!sym_facet) %>%
    mutate(across(!!sym_facet, labelled::to_factor)) %>%
    ggplot() + geom_bar(aes(x = inc_before)) +
    facet_grid(cols = vars(!!sym_facet)) +
    ggtitle(glue::glue("Income Distribution by {facet}"))
})
```

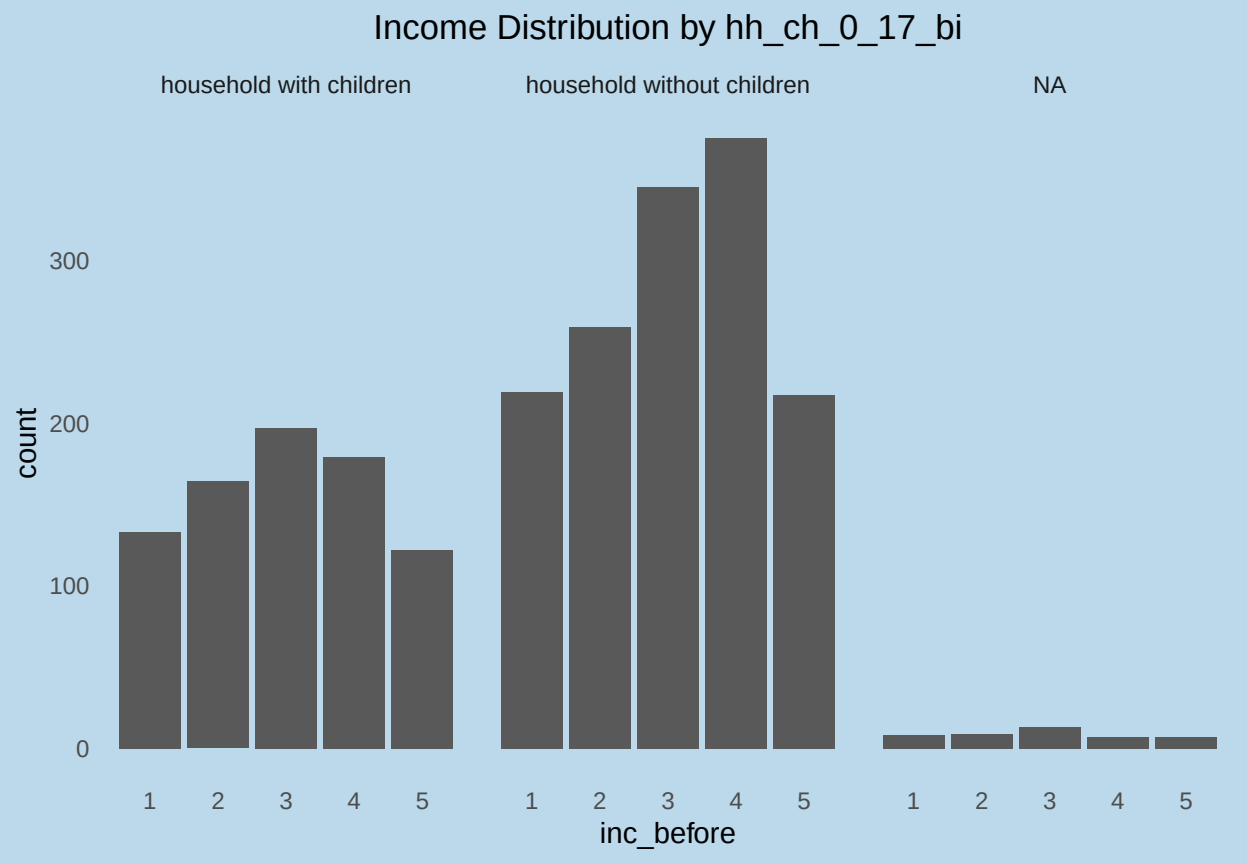
```
## $gen
```



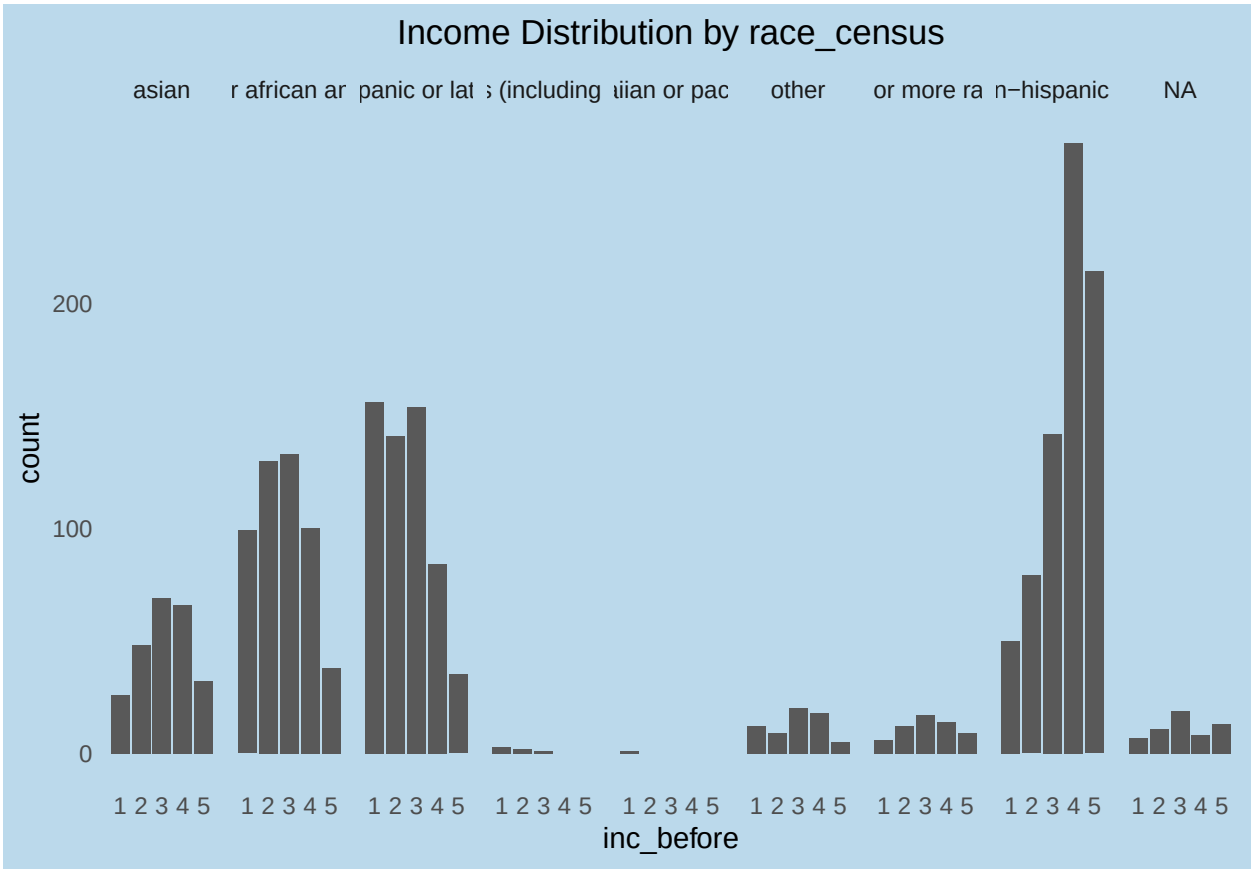

```
##
## $hh_sn_65_bi
```


Income Distribution by hh_sn_65_bi
household with seniors
household without seniors
NA
count
300
200
100
0
1
2
3
4
5
inc_before

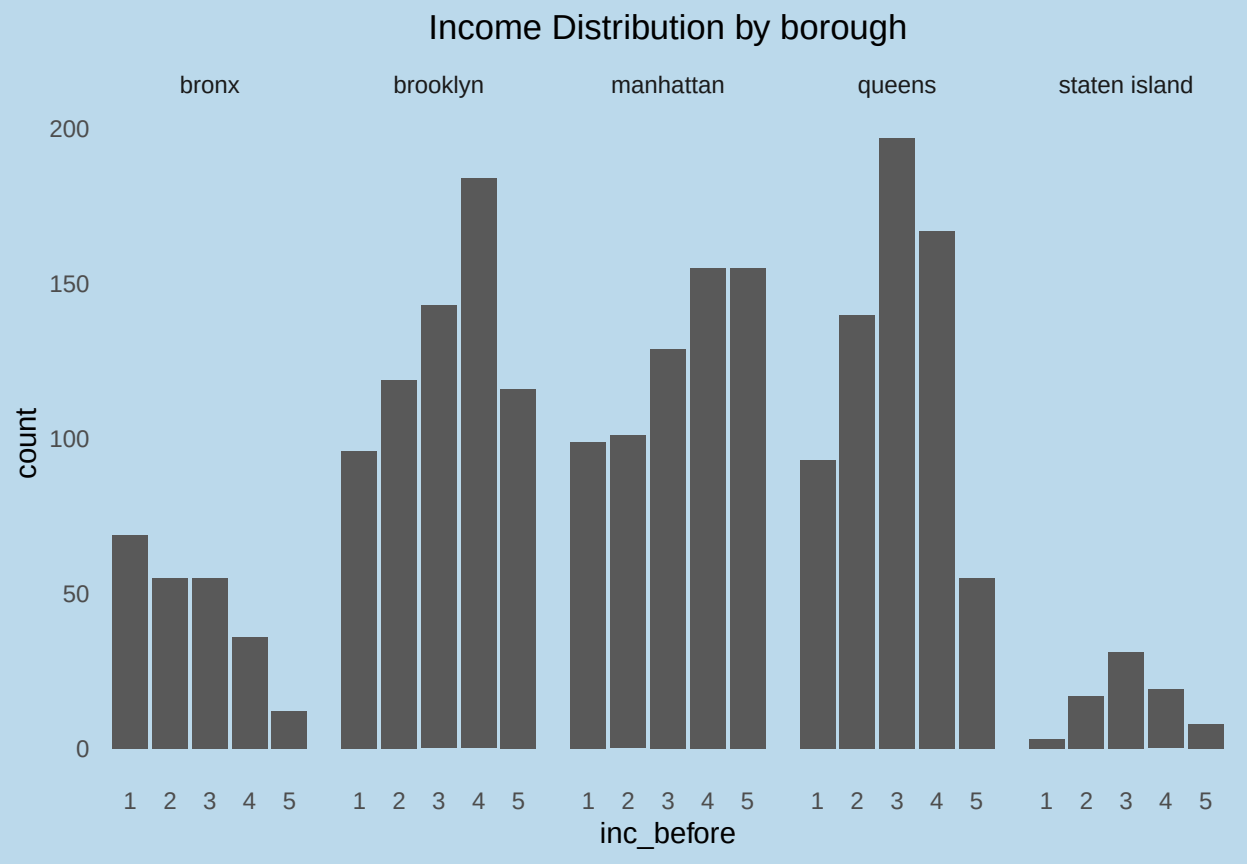
```
##
## $hh_ch_0_17_bi
```


Income Distribution by hh_ch_0_17_bi
household with children
household without children
NA
count
300
200
100
0
1
2
3
4
5
inc_before

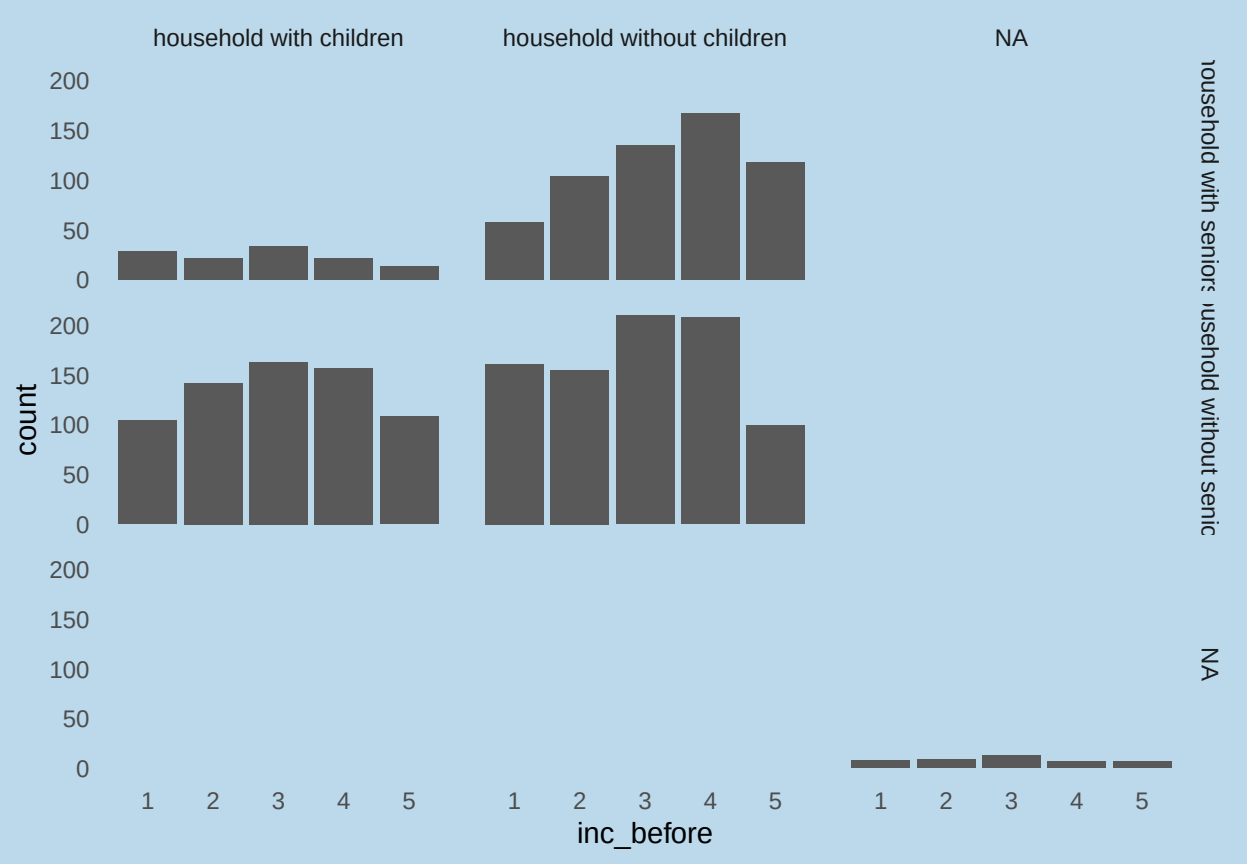
```
##
## $race_census
```


Income Distribution by race_census
asian
r african ar
panic or lat
s (including
ıian or pac
other
or more ra
n−hispanic
NA
200
100
0
count
1 2 3 4 5
inc_before

```
##
## $borough
```




```
wrangled %>%
  select(inc_before, fin_sec_dem) %>%
  mutate(across(c(hh_ch_0_17_bi, hh_sn_65_bi), labelled::to_factor)) %>%
  ggplot() + geom_bar(aes(x = inc_before)) +
  facet_grid(vars(hh_sn_65_bi), vars(hh_ch_0_17_bi))
```



POA

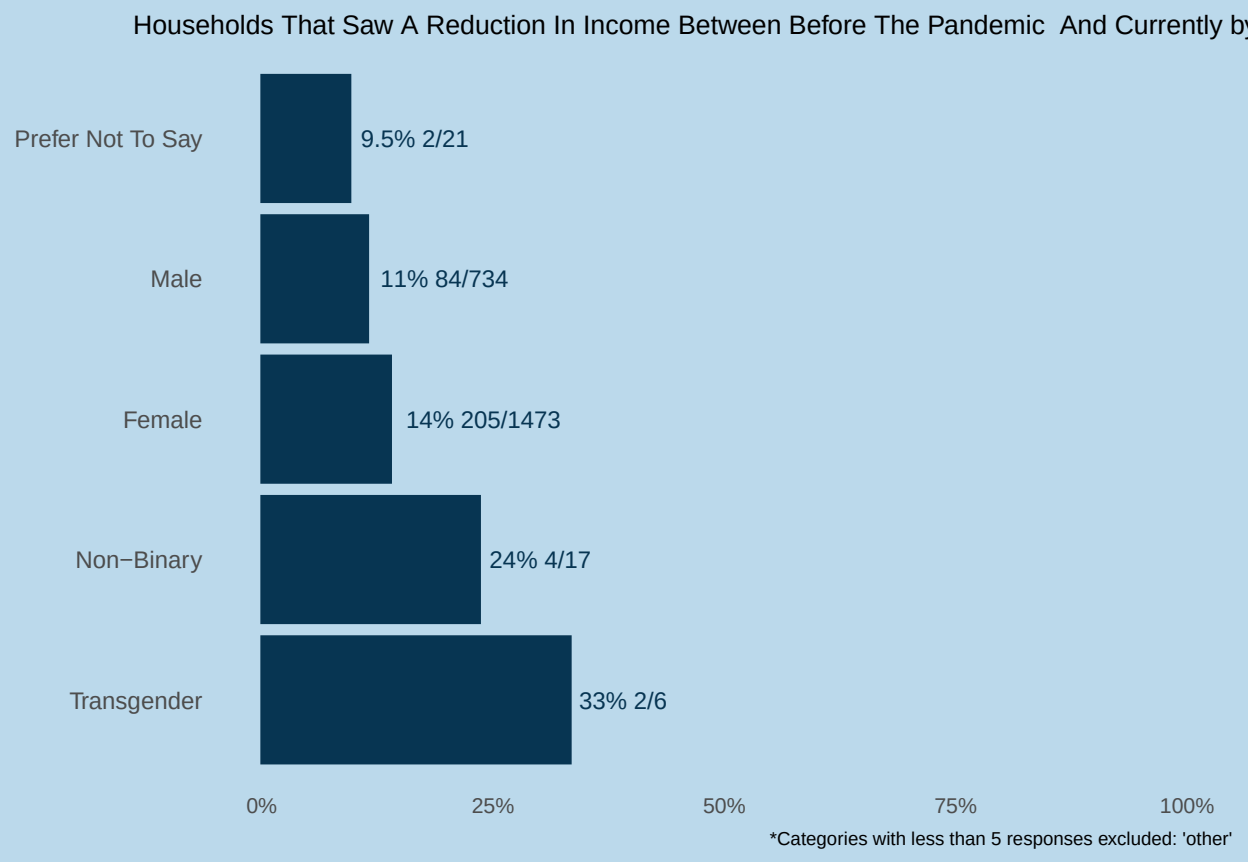
2.1)Households that saw a reduction in income between before the pandemic and currently [12 &13]

1. Compare predicted present income with income before March 2020 income to find positive or negative change
2. Run distribution of negative changes over population
3. Run distribution by sub-demographics (a-k)

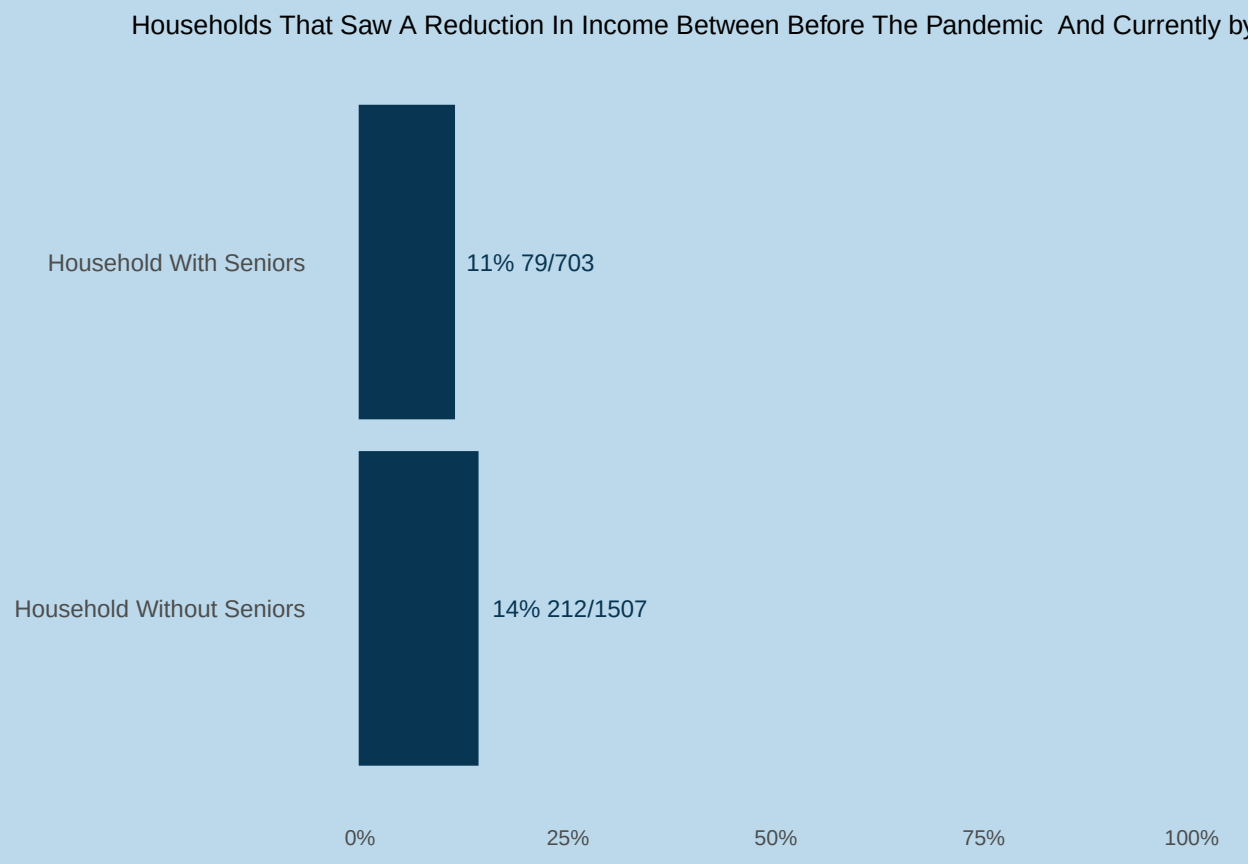
a. Compare and find gaps (test unequal proportions)

```
make_plots(wrangled, fin_sec_dem, "inc_neg", show = "TRUE",
           title = "Households that saw a reduction in income between before the pandemic  and currentl
```

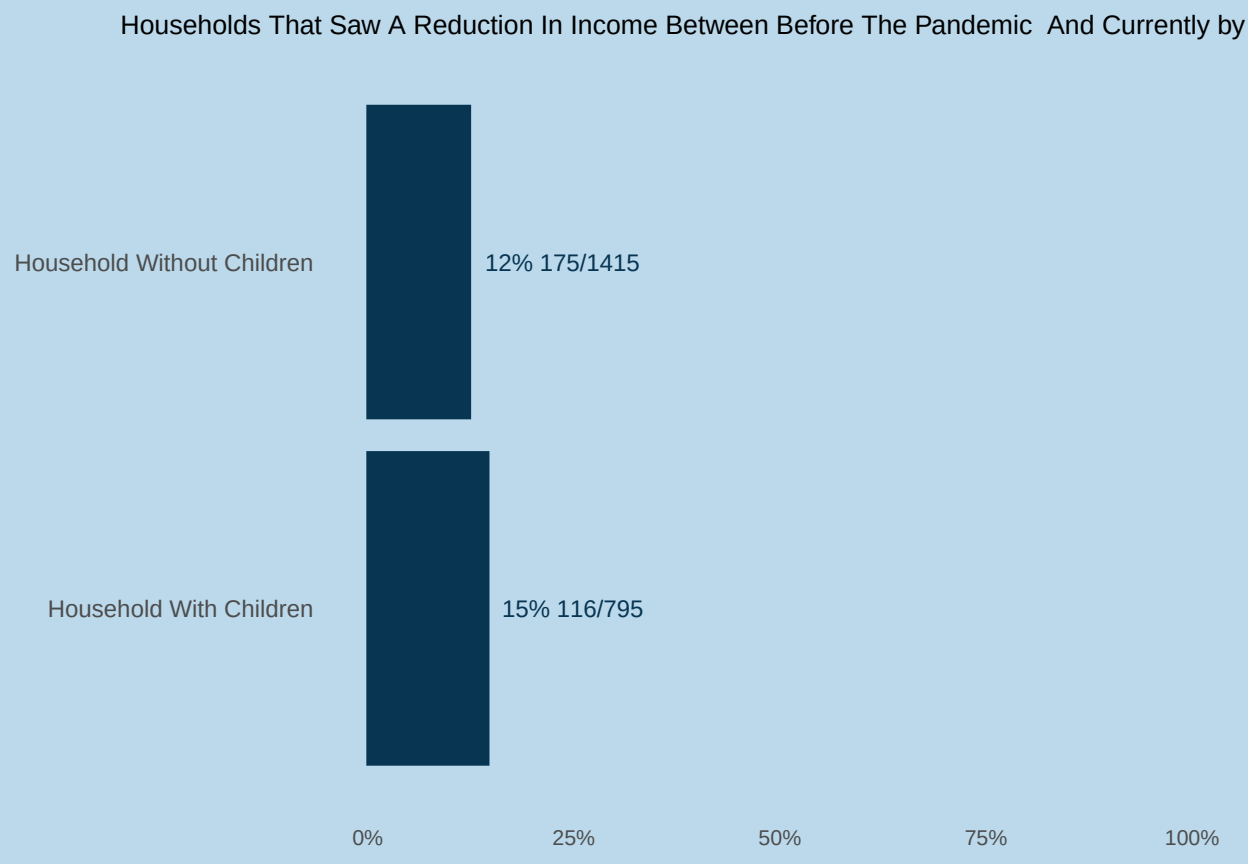
```
## $gen
## $gen$plot
```



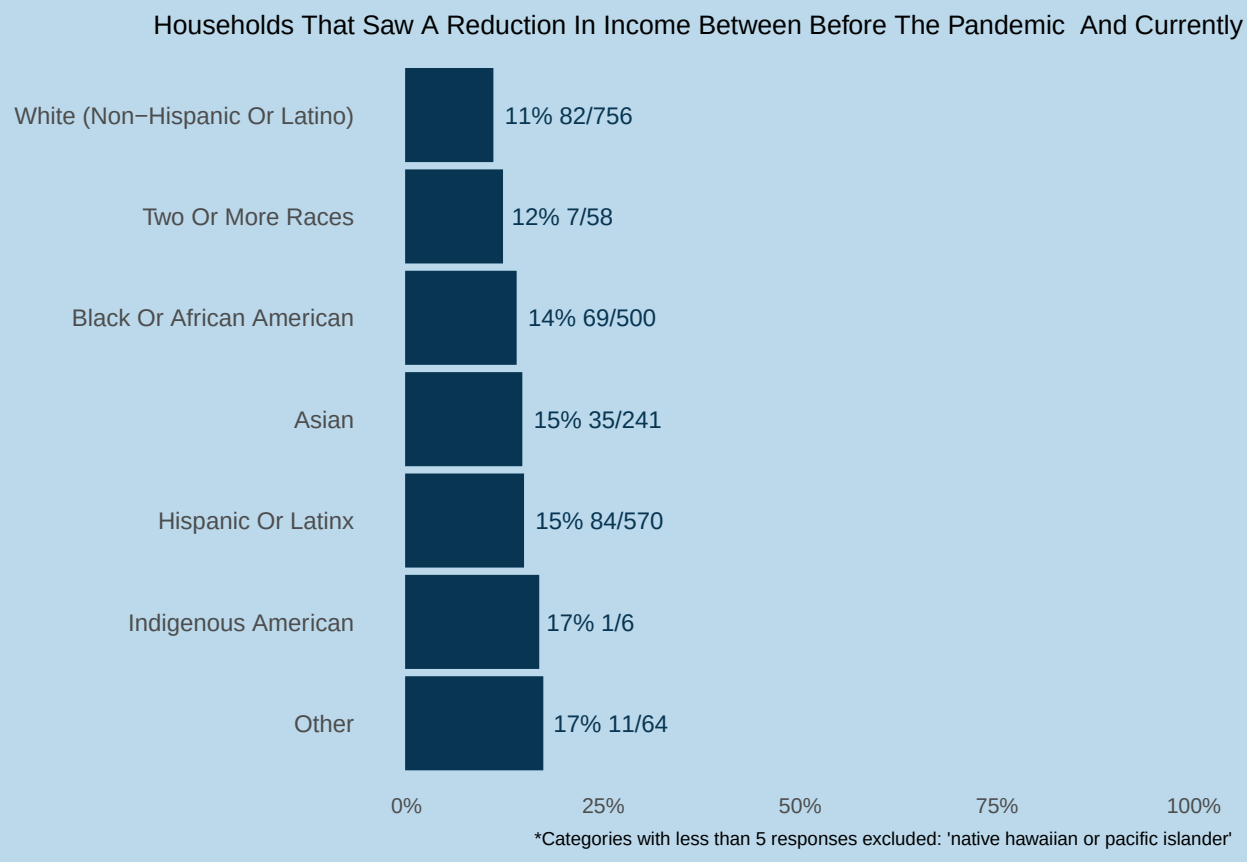

```
##
## $gen$p.values
## $gen$p.values$inc_neg
##                   prefer not to say male female non-binary transgender
## prefer not to say                NA   NA     NA         NA          NA
## male                             NA   NA     NA         NA          NA
## female                           NA   NA     NA         NA          NA
## non-binary                       NA   NA     NA         NA          NA
## transgender                      NA   NA     NA         NA          NA
##
##
##
## $hh_sn_65_bi
## $hh_sn_65_bi$plot
```




```
##
## $hh_sn_65_bi$p.values
## $hh_sn_65_bi$p.values$inc_neg
##                            household with seniors household without seniors
## household with seniors                         NA                        NA
## household without seniors                      NA                        NA
##
##
##
## $hh_ch_0_17_bi
## $hh_ch_0_17_bi$plot
```

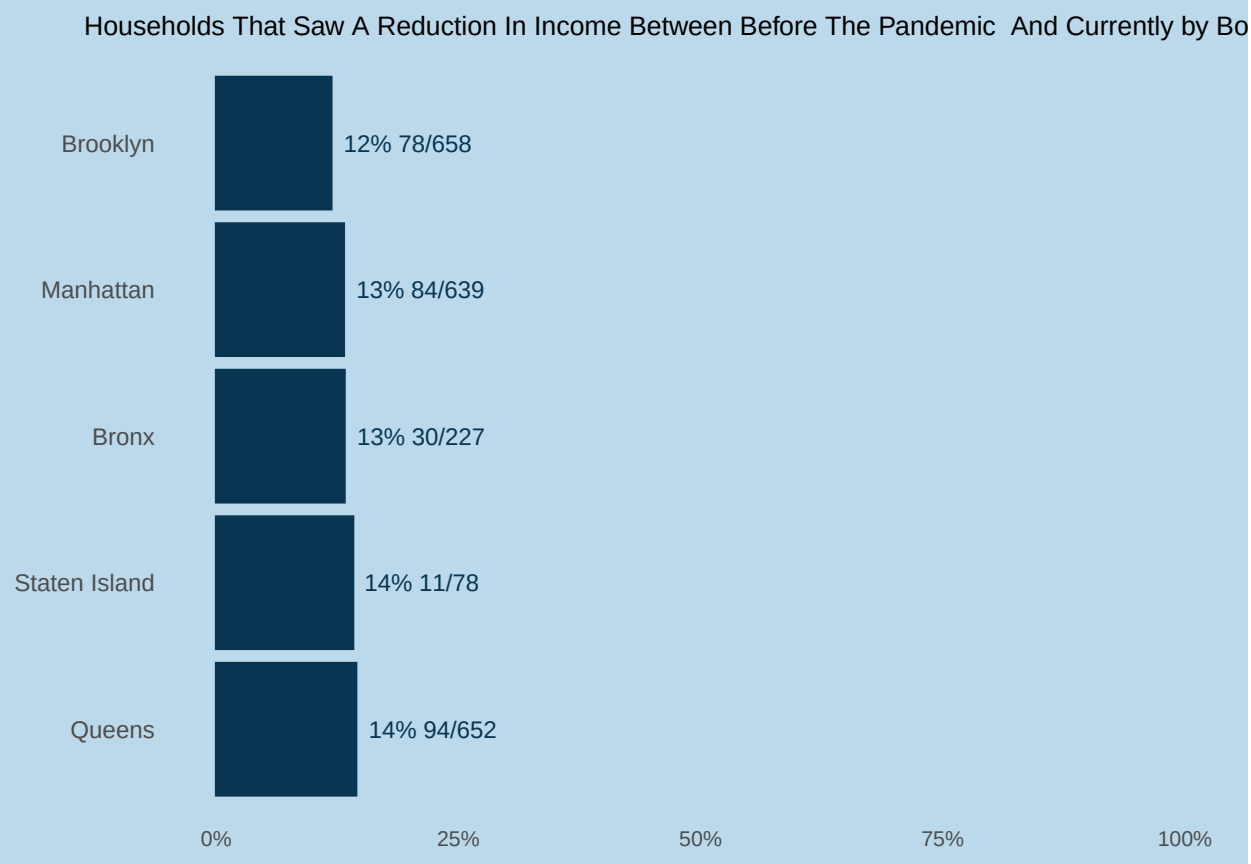



```
##
## $hh_ch_0_17_bi$p.values
## $hh_ch_0_17_bi$p.values$inc_neg
##                             household without children household with children
## household without children                           NA                      NA
## household with children                              NA                      NA
##
##
##
## $race_census
## $race_census$plot
```




```
##
## $race_census$p.values
## $race_census$p.values$inc_neg
##                                 white (non-hispanic or latino) two or more races
## white (non-hispanic or latino)                             NA                NA
## two or more races                                          NA                NA
## black or african american                                  NA                NA
## asian                                                      NA                NA
## hispanic or latinx                                         NA                NA
## Indigenous American                                        NA                NA
## other                                                      NA                NA
##                                 black or african american asian
## white (non-hispanic or latino)                         NA    NA
## two or more races                                      NA    NA
## black or african american                              NA    NA
## asian                                                  NA    NA
## hispanic or latinx                                     NA    NA
## Indigenous American                                    NA    NA
## other                                                  NA    NA
##                                 hispanic or latinx Indigenous American other
## white (non-hispanic or latino)                 NA                    NA    NA
## two or more races                              NA                    NA    NA
## black or african american                      NA                    NA    NA
## asian                                          NA                    NA    NA
## hispanic or latinx                             NA                    NA    NA
## Indigenous American                            NA                    NA    NA
```

```
## other                                          NA                  NA     NA
##
##
##
## $borough
## $borough$plot
```




```
##
## $borough$p.values
## $borough$p.values$inc_neg
##               brooklyn manhattan bronx staten island queens
## brooklyn            NA        NA    NA             NA     NA
## manhattan           NA        NA    NA             NA     NA
## bronx               NA        NA    NA             NA     NA
## staten island       NA        NA    NA             NA     NA
## queens              NA        NA    NA             NA     NA
```

```
cat("None of these plots show statistically significant results")
```

```
## None of these plots show statistically significant results
```

2.2)Households whose income dropped below the poverty line from 2020 to 2021 [12 & 13]

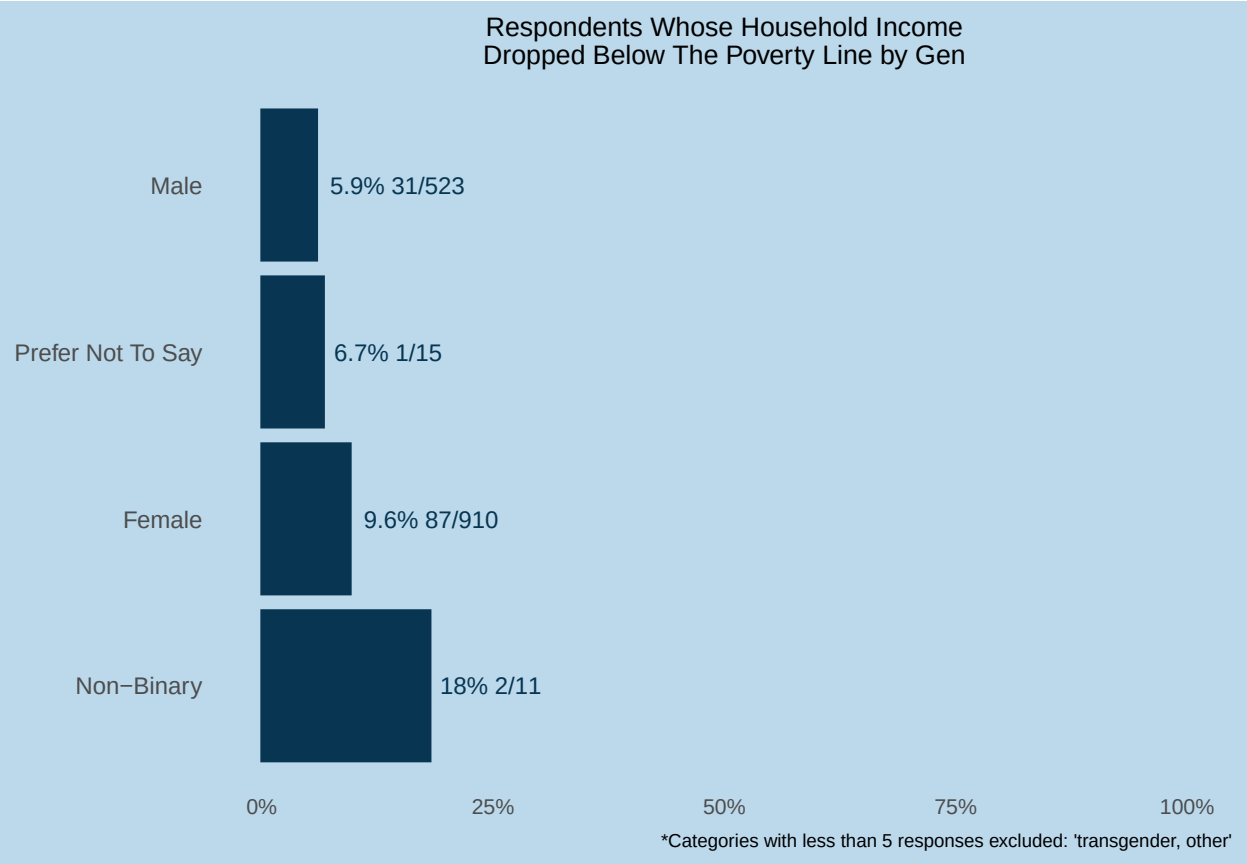
1. Run distribution over population

2. Run distribution by sub-demographics (a-k) and type of previous employment [13]

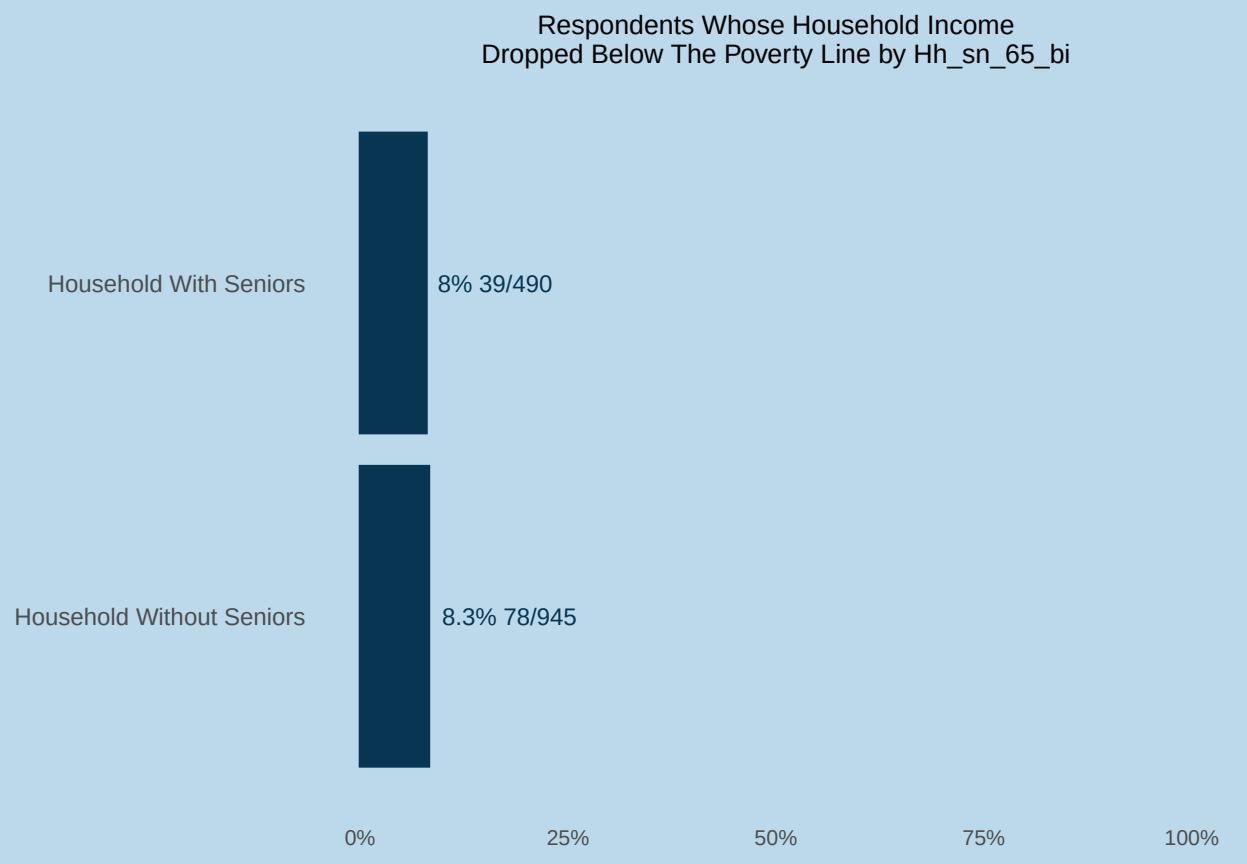
a. Compare and find gaps (test unequal proportions)

```
make_plots(wrangled %>% filter(inc_be_pov_before == 0), # filter for those who started above the poverty
           by_vars = fin_sec_dem, hyp_var = "inc_drop_pov",
           title = "Respondents whose household income\ndropped below the poverty line", show=TRUE)
```

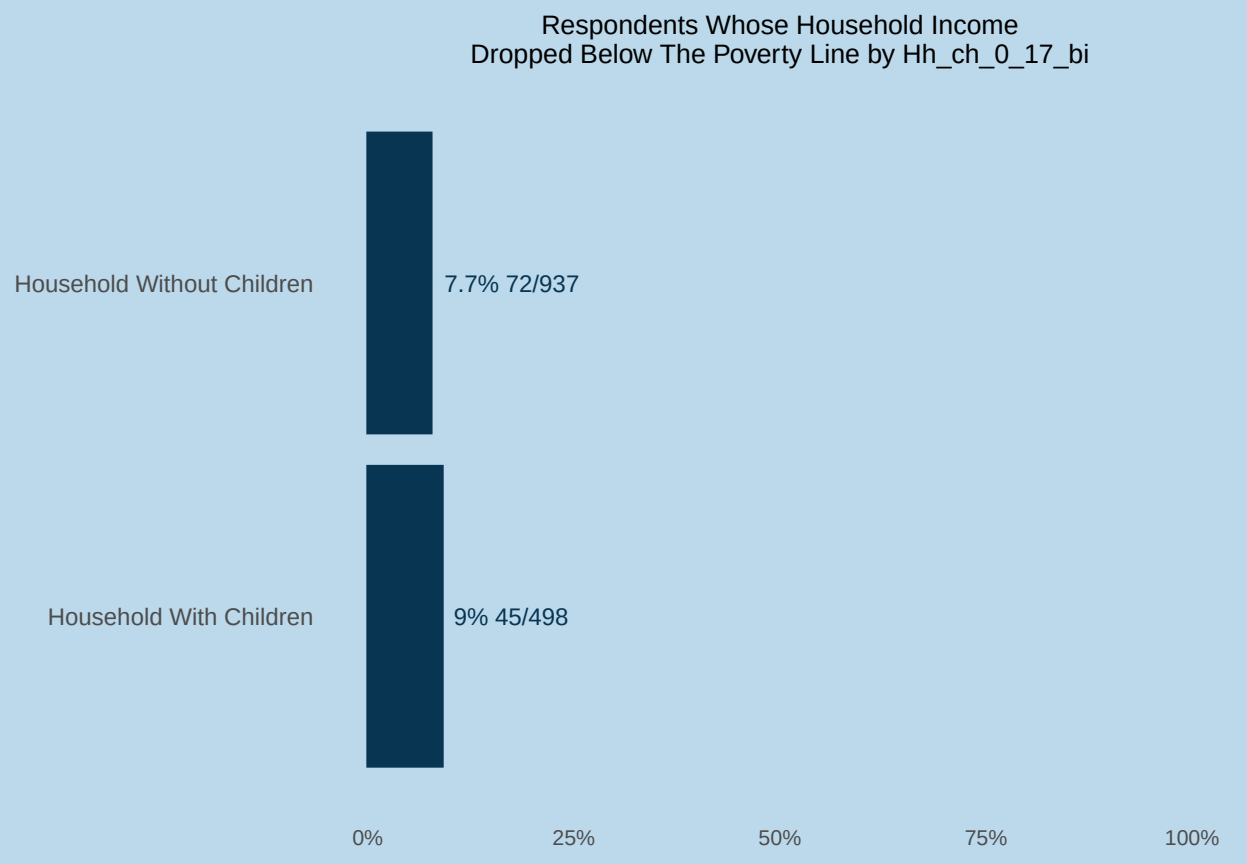
```
## $gen
## $gen$plot
```



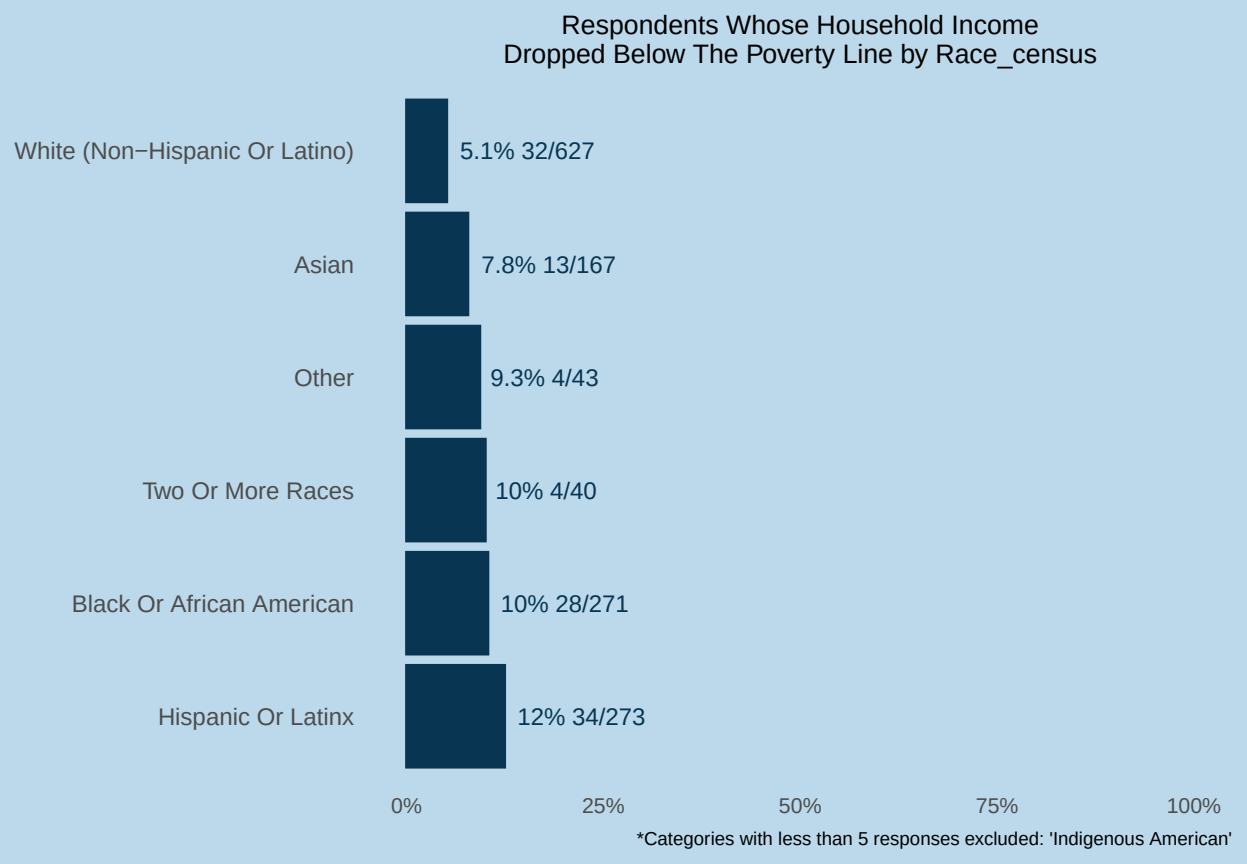

```
##
## $gen$p.values
## $gen$p.values$inc_drop_pov
##                   male prefer not to say female non-binary
## male                NA                NA     NA         NA
## prefer not to say   NA                NA     NA         NA
## female              NA                NA     NA         NA
## non-binary          NA                NA     NA         NA
##
##
##
## $hh_sn_65_bi
## $hh_sn_65_bi$plot
```




```
##
## $hh_sn_65_bi$p.values
## $hh_sn_65_bi$p.values$inc_drop_pov
##                           household with seniors household without seniors
## household with seniors                        NA                        NA
## household without seniors                     NA                        NA
##
##
##
## $hh_ch_0_17_bi
## $hh_ch_0_17_bi$plot
```

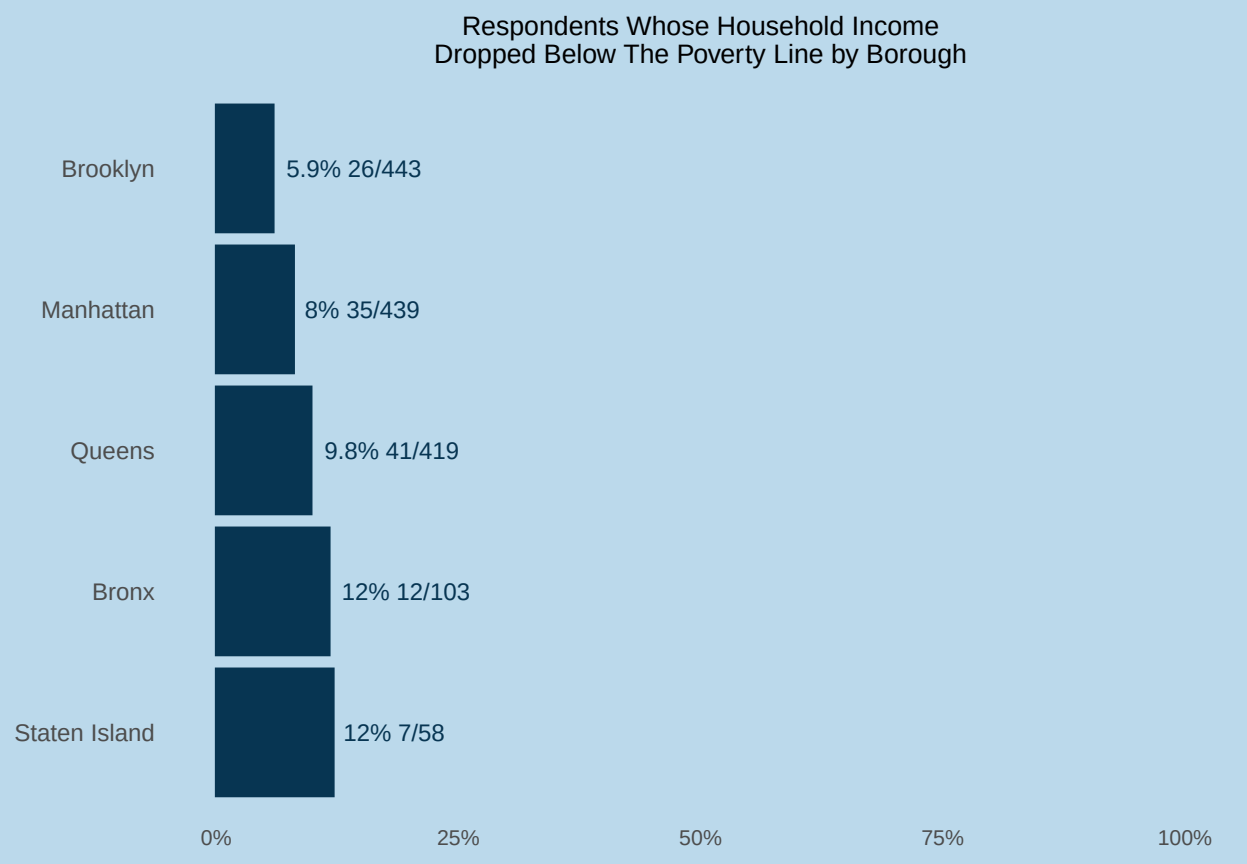



```
##
## $hh_ch_0_17_bi$p.values
## $hh_ch_0_17_bi$p.values$inc_drop_pov
##                             household without children household with children
## household without children                           NA                      NA
## household with children                              NA                      NA
##
##
##
## $race_census
## $race_census$plot
```




```
##
## $race_census$p.values
## $race_census$p.values$inc_drop_pov
##                                white (non-hispanic or latino) asian other
## white (non-hispanic or latino)                             NA    NA    NA
## asian                                                      NA    NA    NA
## other                                                      NA    NA    NA
## two or more races                                          NA    NA    NA
## black or african american                             0.00620    NA    NA
## hispanic or latinx                                    0.00018    NA    NA
##                                two or more races black or african american
## white (non-hispanic or latino)                NA                     0.0062
## asian                                         NA                         NA
## other                                         NA                         NA
## two or more races                             NA                         NA
## black or african american                     NA                         NA
## hispanic or latinx                            NA                         NA
##                                hispanic or latinx
## white (non-hispanic or latino)            0.00018
## asian                                          NA
## other                                          NA
## two or more races                              NA
## black or african american                      NA
## hispanic or latinx                             NA
##
##
```

```
##
## $borough
## $borough$plot
```




```
##
## $borough$p.values
## $borough$p.values$inc_drop_pov
##               brooklyn manhattan queens bronx staten island
## brooklyn             NA        NA     NA    NA            NA
## manhattan            NA        NA     NA    NA            NA
## queens               NA        NA     NA    NA            NA
## bronx                NA        NA     NA    NA            NA
## staten island        NA        NA     NA    NA            NA
```

```
cat("Plots for hh_sn_65_bi, hh_ch_0_17_bi, borough do not have\n at least one statistically significant
```

```
## Plots for hh_sn_65_bi, hh_ch_0_17_bi, borough do not have
##  at least one statistically significant result
```

2.4 - 2.5)People who had difficulty paying bills or rent in the past year

2.4)People who had difficulty paying bills in the past year [21]

1. Run distribution over population

2. Run distribution by sub-demographics (a-k)

a. Compare and find gaps (test unequal proportions)

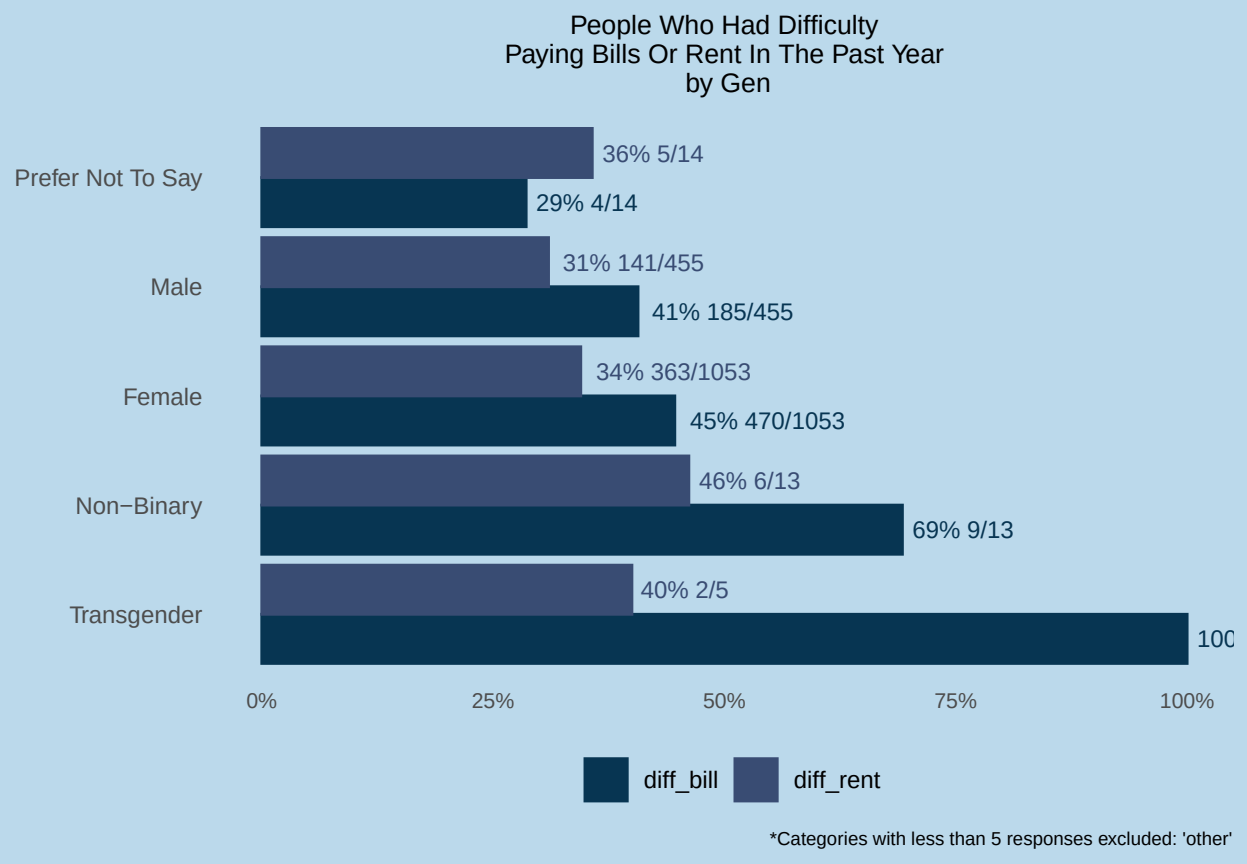
2.5)People who had difficulty paying rent in the past year [21]

1. Run distribution over population
2. Run distribution by sub-demographics (a-k)

a. Compare and find gaps (test unequal proportions)

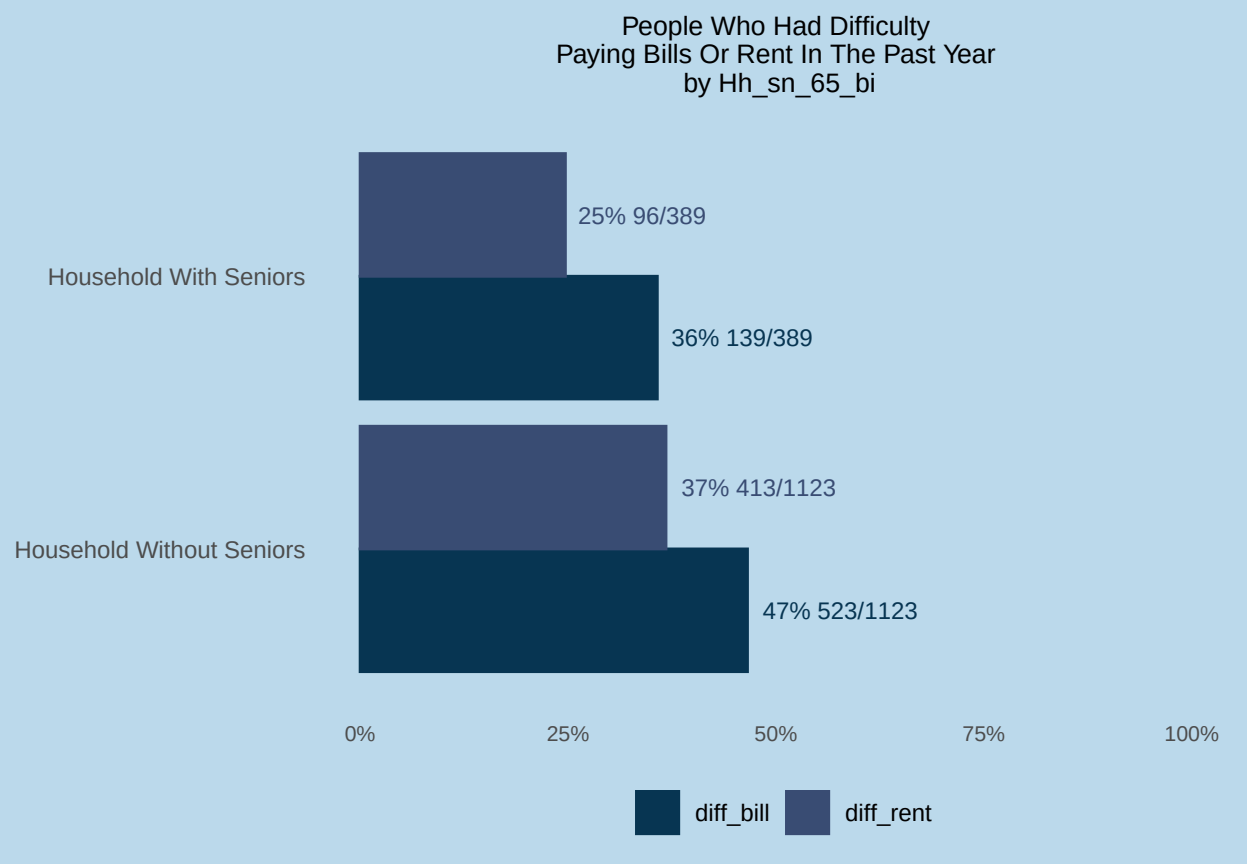
```
make_plots(wrangled, fin_sec_dem, c("diff_bill", "diff_rent"),
           title = "People who had difficulty\npaying bills or rent in the past year\n", show = TRUE)
```

```
## $gen
## $gen$plot
```



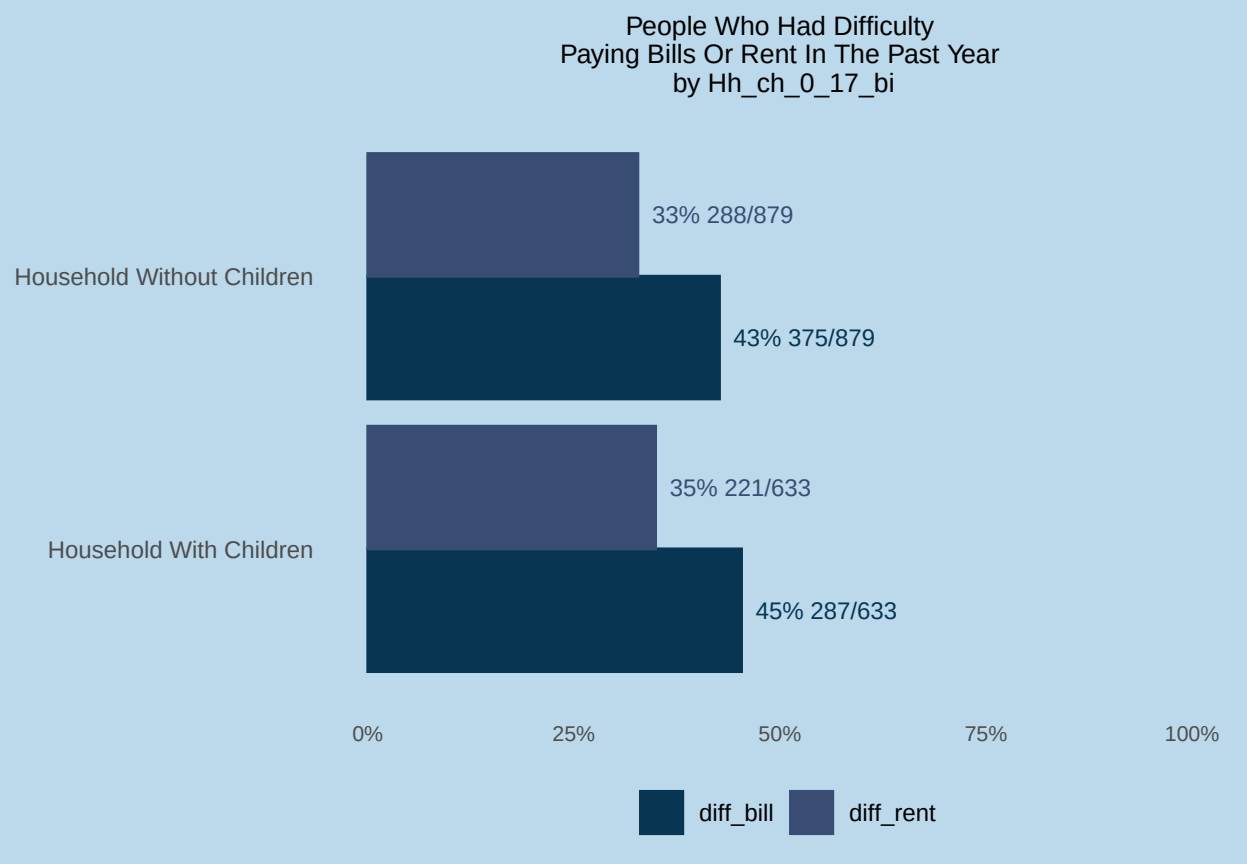

```
##
## $gen$p.values
## $gen$p.values$diff_bill
##                   prefer not to say male female non-binary transgender
## prefer not to say                NA   NA     NA         NA          NA
## male                             NA   NA     NA         NA          NA
```

```
## female                          NA   NA     NA         NA          NA
## non-binary                      NA   NA     NA         NA          NA
## transgender                     NA   NA     NA         NA          NA
##
## $gen$p.values$diff_rent
##                   male female prefer not to say transgender non-binary
## male                NA     NA                NA          NA         NA
## female              NA     NA                NA          NA         NA
## prefer not to say   NA     NA                NA          NA         NA
## transgender         NA     NA                NA          NA         NA
## non-binary          NA     NA                NA          NA         NA
##
##
##
## $hh_sn_65_bi
## $hh_sn_65_bi$plot
```

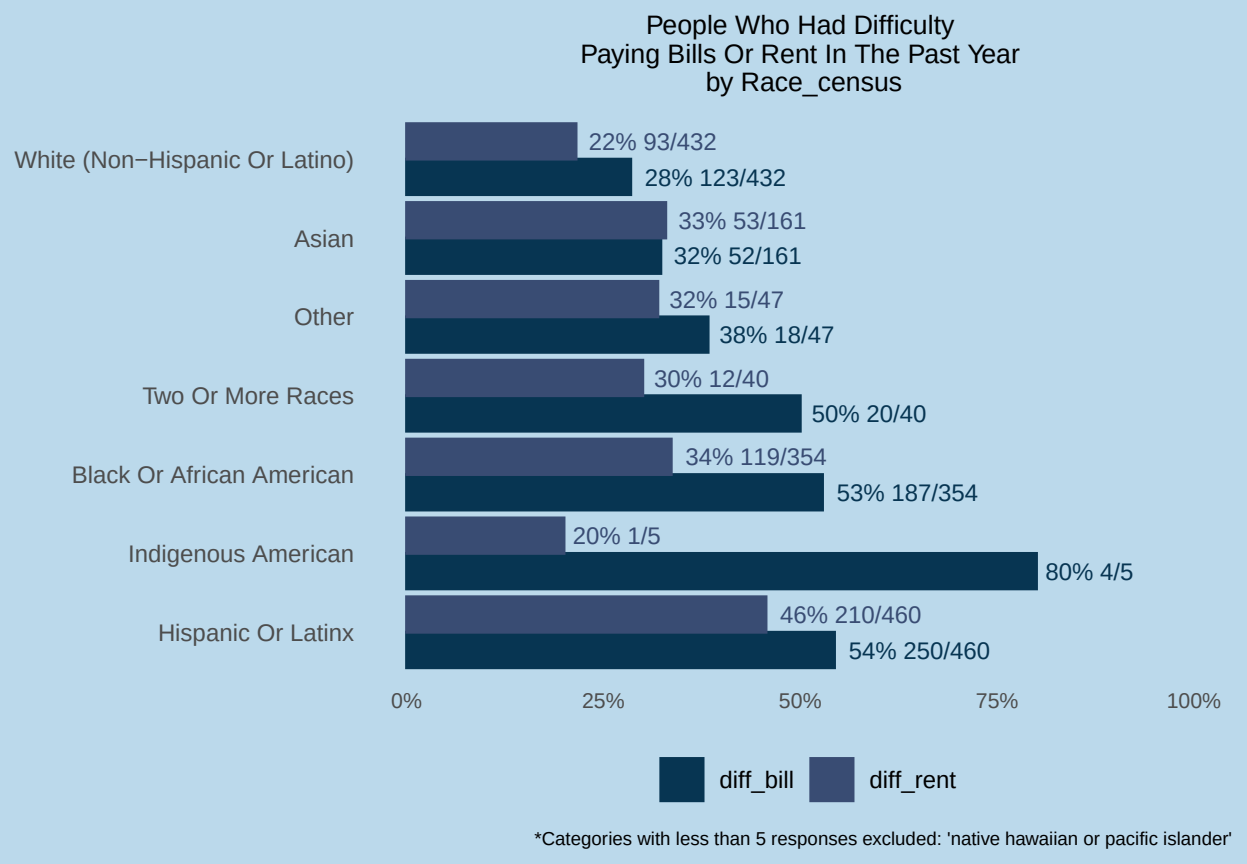



```
##
## $hh_sn_65_bi$p.values
## $hh_sn_65_bi$p.values$diff_bill
##                           household with seniors household without seniors
## household with seniors                        NA                   0.00026
## household without seniors                0.00026                        NA
##
## $hh_sn_65_bi$p.values$diff_rent
```

```
##                            household with seniors household without seniors
## household with seniors                         NA                   1.8e-05
## household without seniors                1.8e-05                        NA
##
##
##
## $hh_ch_0_17_bi
## $hh_ch_0_17_bi$plot
```

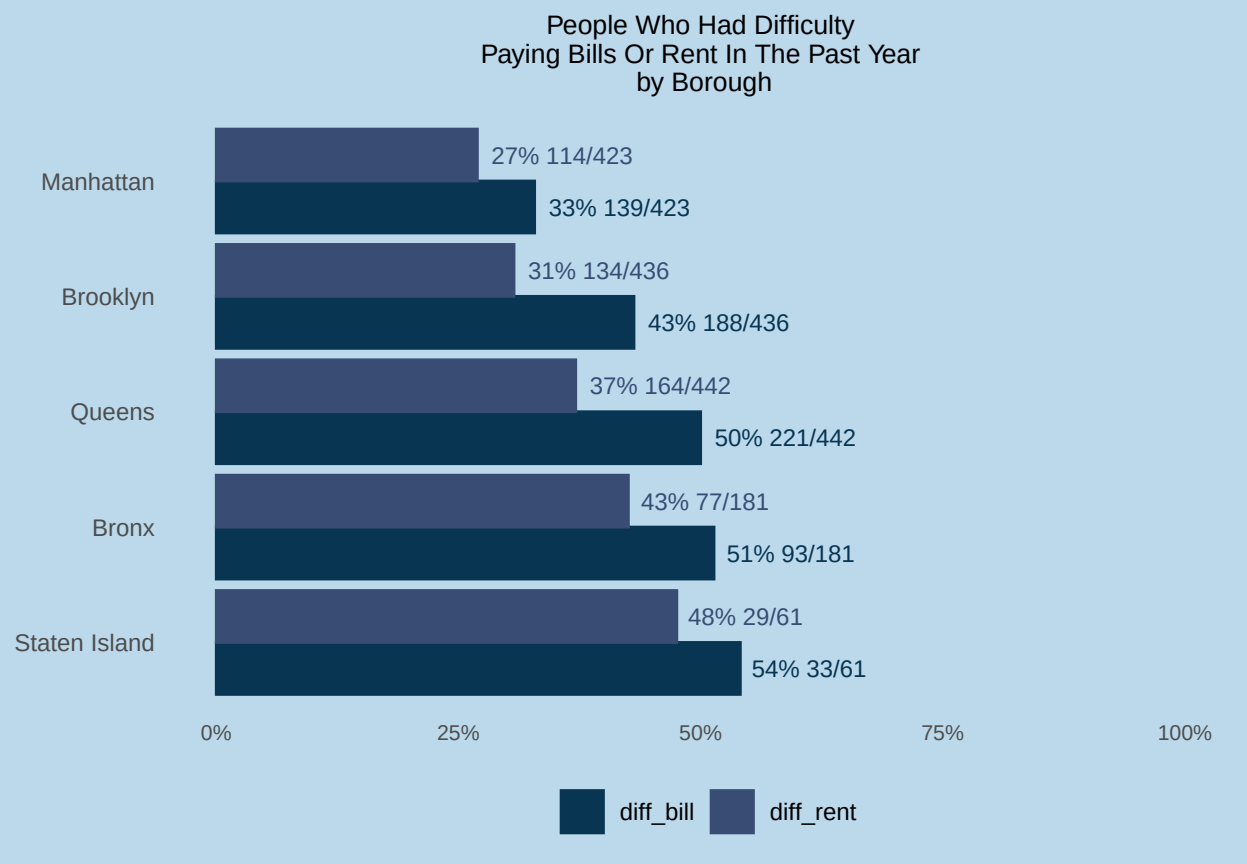



```
##
## $hh_ch_0_17_bi$p.values
## $hh_ch_0_17_bi$p.values$diff_bill
##                            household without children household with children
## household without children                         NA                      NA
## household with children                           NA                      NA
##
## $hh_ch_0_17_bi$p.values$diff_rent
##                            household without children household with children
## household without children                         NA                      NA
## household with children                           NA                      NA
##
##
##
## $race_census
## $race_census$plot
```




```
##
## $race_census$p.values
## $race_census$p.values$diff_bill
##                                 white (non-hispanic or latino)   asian other
## white (non-hispanic or latino)                                NA      NA    NA
## asian                                                         NA      NA    NA
## other                                                         NA      NA    NA
## two or more races                                        7.9e-03      NA    NA
## black or african american                                6.1e-12 2.3e-05    NA
## hispanic or latinx                                       8.4e-15 2.3e-06    NA
## Indigenous American                                           NA      NA    NA
##                                 two or more races black or african american
## white (non-hispanic or latino)            0.0079                    6.1e-12
## asian                                         NA                    2.3e-05
## other                                         NA                         NA
## two or more races                             NA                         NA
## black or african american                     NA                         NA
## hispanic or latinx                            NA                         NA
## Indigenous American                           NA                         NA
##                                 hispanic or latinx Indigenous American
## white (non-hispanic or latino)            8.4e-15                   NA
## asian                                     2.3e-06                   NA
## other                                         NA                    NA
## two or more races                             NA                    NA
## black or african american                     NA                    NA
## hispanic or latinx                            NA                    NA
```

```
## Indigenous American                             NA                  NA
##
## $race_census$p.values$diff_rent
##                                Indigenous American
## Indigenous American                             NA
## white (non-hispanic or latino)                  NA
## two or more races                               NA
## other                                           NA
## asian                                           NA
## black or african american                       NA
## hispanic or latinx                              NA
##                                white (non-hispanic or latino) two or more races
## Indigenous American                                        NA                 NA
## white (non-hispanic or latino)                             NA                 NA
## two or more races                                          NA                 NA
## other                                                      NA                 NA
## asian                                                 5.8e-03                 NA
## black or african american                             2.0e-04                 NA
## hispanic or latinx                                    5.0e-14                 NA
##                                other  asian black or african american
## Indigenous American               NA     NA                        NA
## white (non-hispanic or latino)    NA 0.0058                   0.00020
## two or more races                 NA     NA                        NA
## other                             NA     NA                        NA
## asian                             NA     NA                        NA
## black or african american         NA     NA                        NA
## hispanic or latinx                NA 0.0065                   0.00068
##                                hispanic or latinx
## Indigenous American                            NA
## white (non-hispanic or latino)           5.0e-14
## two or more races                              NA
## other                                          NA
## asian                                    6.5e-03
## black or african american                6.8e-04
## hispanic or latinx                             NA
##
##
##
## $borough
## $borough$plot
```




```
##
## $borough$p.values
## $borough$p.values$diff_bill
##               manhattan brooklyn  queens   bronx staten island
## manhattan            NA   0.0025 4.6e-07 2.7e-05         0.002
## brooklyn        2.5e-03       NA      NA      NA            NA
## queens          4.6e-07       NA      NA      NA            NA
## bronx           2.7e-05       NA      NA      NA            NA
## staten island   2.0e-03       NA      NA      NA            NA
##
## $borough$p.values$diff_rent
##               manhattan brooklyn queens   bronx staten island
## manhattan            NA       NA 0.0018 0.00023        0.0017
## brooklyn             NA       NA     NA 0.00650            NA
## queens          0.00180       NA     NA      NA            NA
## bronx           0.00023   0.0065     NA      NA            NA
## staten island   0.00170       NA     NA      NA            NA
```

```
cat("Plots for gen and hh_ch_0_17_bi do not show at least one statistically significant result")
```

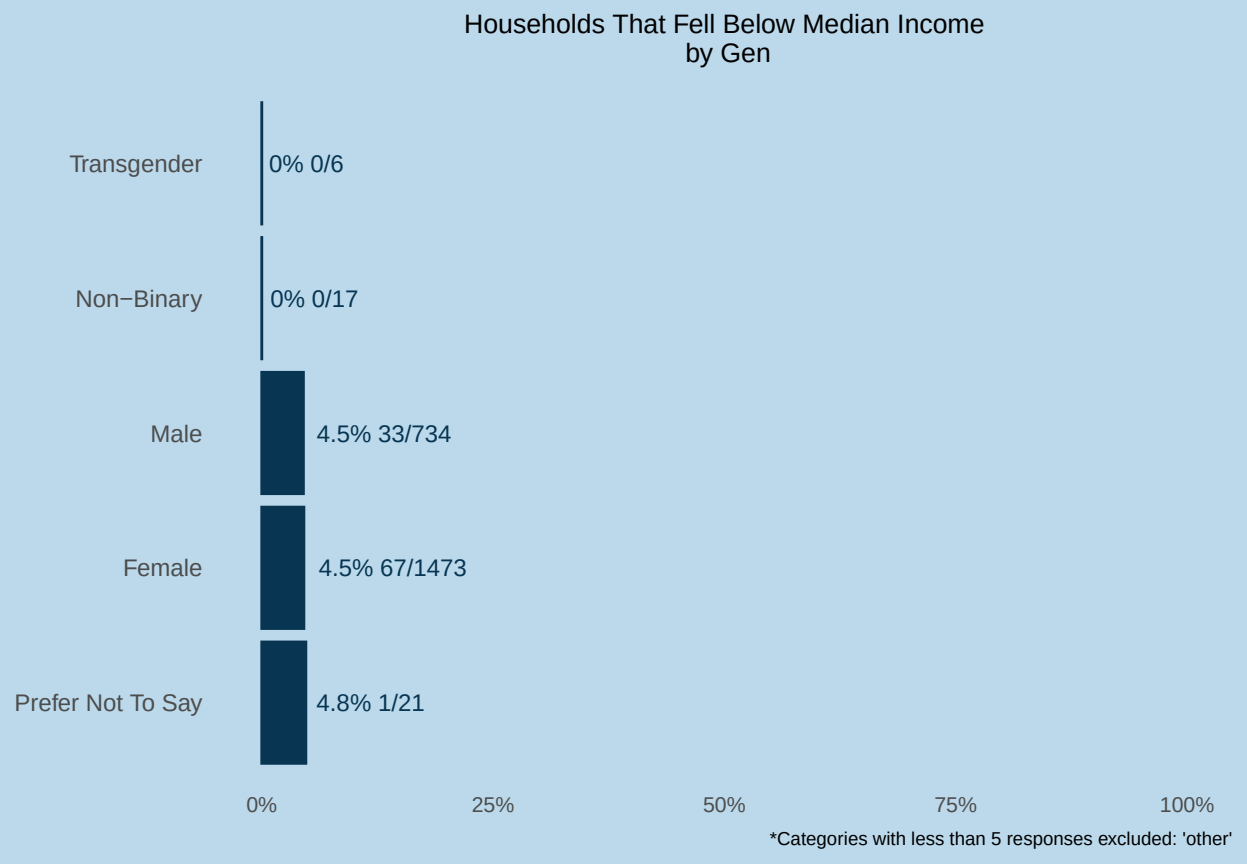
```
## Plots for gen and hh_ch_0_17_bi do not show at least one statistically significant result
```

2.6) Households that fell below median income from before the pandemic (2020) to 2021

1. Run distribution over population
2. Run distribution over all the sub demographic group

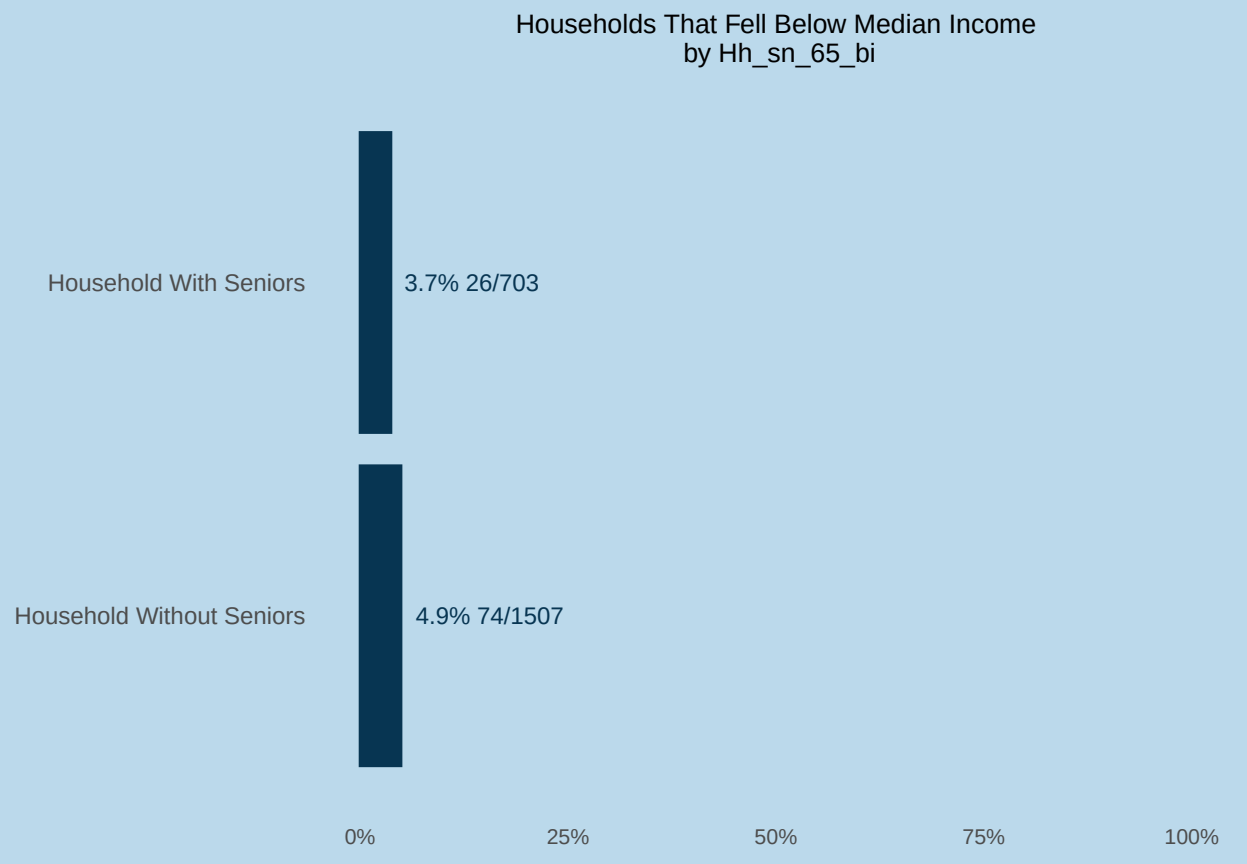
```
make_plots(wrangled, fin_sec_dem, "inc_drop_med",
           title = "Households that fell below median income\n", show = TRUE)
```

```
## $gen
## $gen$plot
```

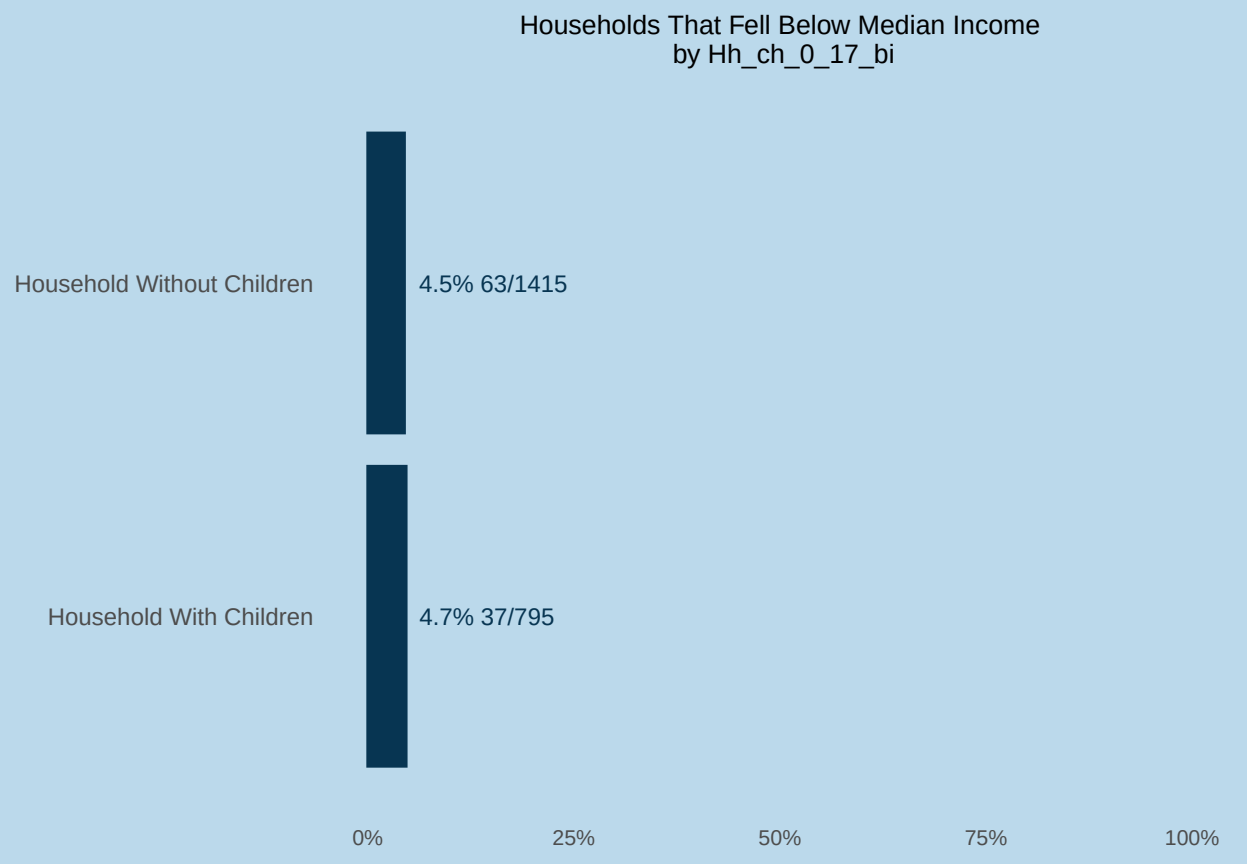



```
##
## $gen$p.values
## $gen$p.values$inc_drop_med
##                   non-binary transgender male female prefer not to say
## non-binary                NA          NA   NA     NA                NA
## transgender               NA          NA   NA     NA                NA
## male                      NA          NA   NA     NA                NA
## female                    NA          NA   NA     NA                NA
## prefer not to say         NA          NA   NA     NA                NA
##
##
##
```

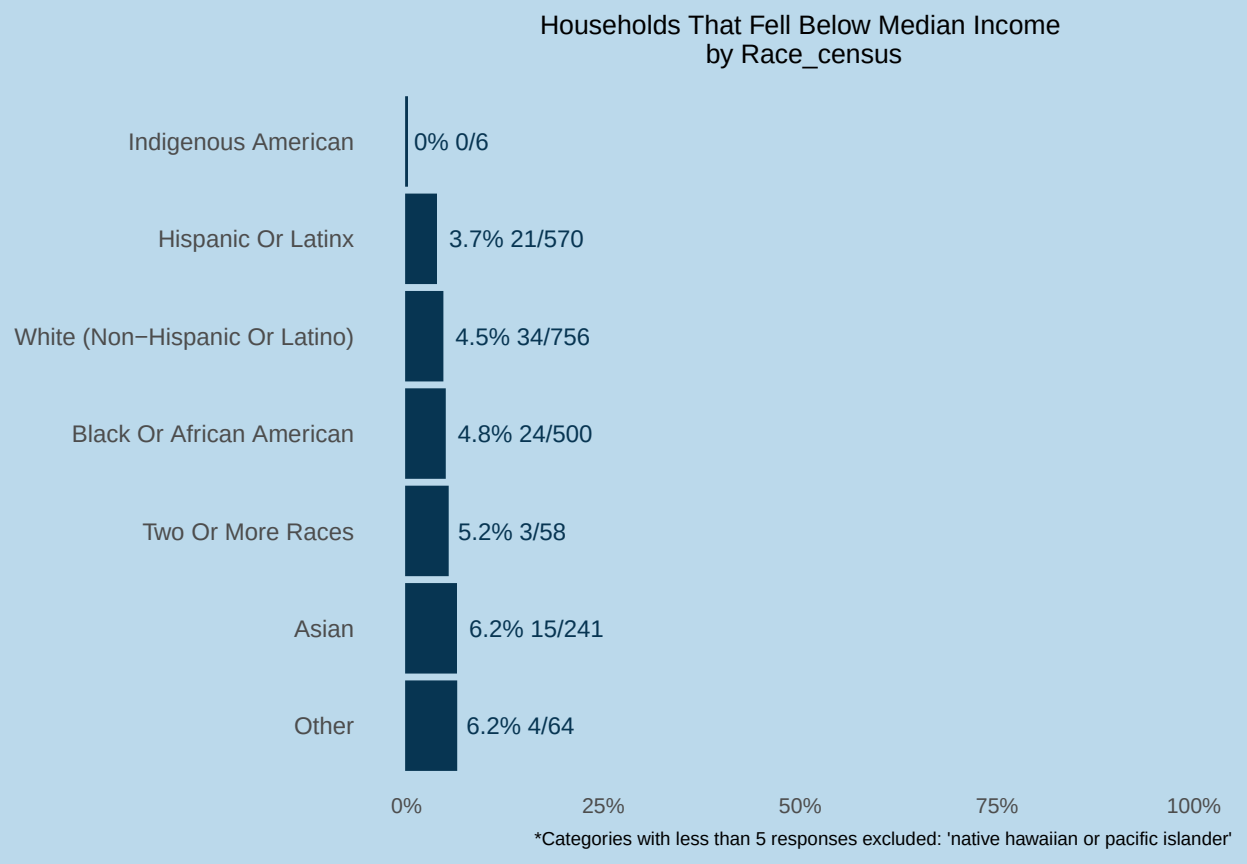
```
## $hh_sn_65_bi
## $hh_sn_65_bi$plot
```




```
##
## $hh_sn_65_bi$p.values
## $hh_sn_65_bi$p.values$inc_drop_med
##                           household with seniors household without seniors
## household with seniors                        NA                        NA
## household without seniors                     NA                        NA
##
##
##
## $hh_ch_0_17_bi
## $hh_ch_0_17_bi$plot
```

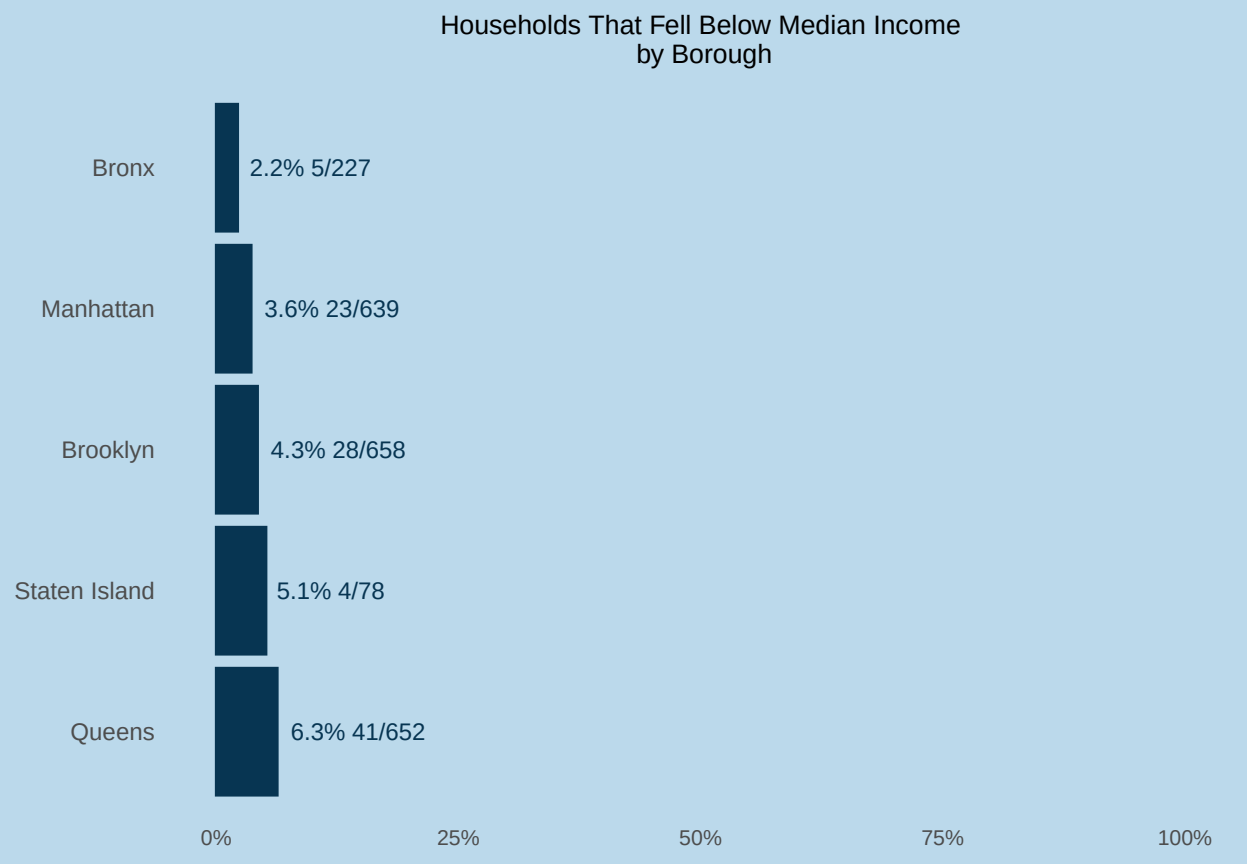



```
##
## $hh_ch_0_17_bi$p.values
## $hh_ch_0_17_bi$p.values$inc_drop_med
##                            household without children household with children
## household without children                          NA                      NA
## household with children                            NA                      NA
##
##
##
## $race_census
## $race_census$plot
```




```
##
## $race_census$p.values
## $race_census$p.values$inc_drop_med
##                                 Indigenous American hispanic or latinx
## Indigenous American                              NA                 NA
## hispanic or latinx                               NA                 NA
## white (non-hispanic or latino)                   NA                 NA
## black or african american                        NA                 NA
## two or more races                                NA                 NA
## asian                                            NA                 NA
## other                                            NA                 NA
##                                 white (non-hispanic or latino)
## Indigenous American                                         NA
## hispanic or latinx                                          NA
## white (non-hispanic or latino)                              NA
## black or african american                                   NA
## two or more races                                           NA
## asian                                                       NA
## other                                                       NA
##                                 black or african american two or more races
## Indigenous American                                     NA                 NA
## hispanic or latinx                                      NA                 NA
## white (non-hispanic or latino)                          NA                 NA
## black or african american                               NA                 NA
## two or more races                                       NA                 NA
## asian                                                   NA                 NA
```

```
## other                                                 NA                 NA
##                                 asian other
## Indigenous American                NA    NA
## hispanic or latinx                 NA    NA
## white (non-hispanic or latino)     NA    NA
## black or african american          NA    NA
## two or more races                  NA    NA
## asian                              NA    NA
## other                              NA    NA
##
##
##
## $borough
## $borough$plot
```




```
##
## $borough$p.values
## $borough$p.values$inc_drop_med
##               bronx manhattan brooklyn staten island queens
## bronx            NA        NA       NA            NA     NA
## manhattan        NA        NA       NA            NA     NA
## brooklyn         NA        NA       NA            NA     NA
## staten island    NA        NA       NA            NA     NA
## queens           NA        NA       NA            NA     NA
```

```
cat("None of these plots show at least one statistically significant result")
```

```
## None of these plots show at least one statistically significant result
```

2.7 - 2.8)Houoseholds that experienced food insecuirty in the past year [21, 25]

2.7)Households that experienced food insecurity in the past year [21]

1. Run binary distribution over population

a. Indicators: worried about food running out, ran out of food/ unable to afford food
b. Yes = 1+ indicator
c. No = 0 indicators

2. Run continuous distribution over population

a. Indicators: worried about food running out, ran out of food/ unable to afford food
b. Very food insecure = 2 indicators
c. Somewhat food insecure = worried about food not lasting (OR experienced food bought didn't last i.e. 1 indicator?)
d. Not food insecure = 0 indicators

2.8)Households with children were more likely to experience food insecurity in the past year [25,21]

1. Find respondents who had at least one child (child under 4 or school-aged child) [25]

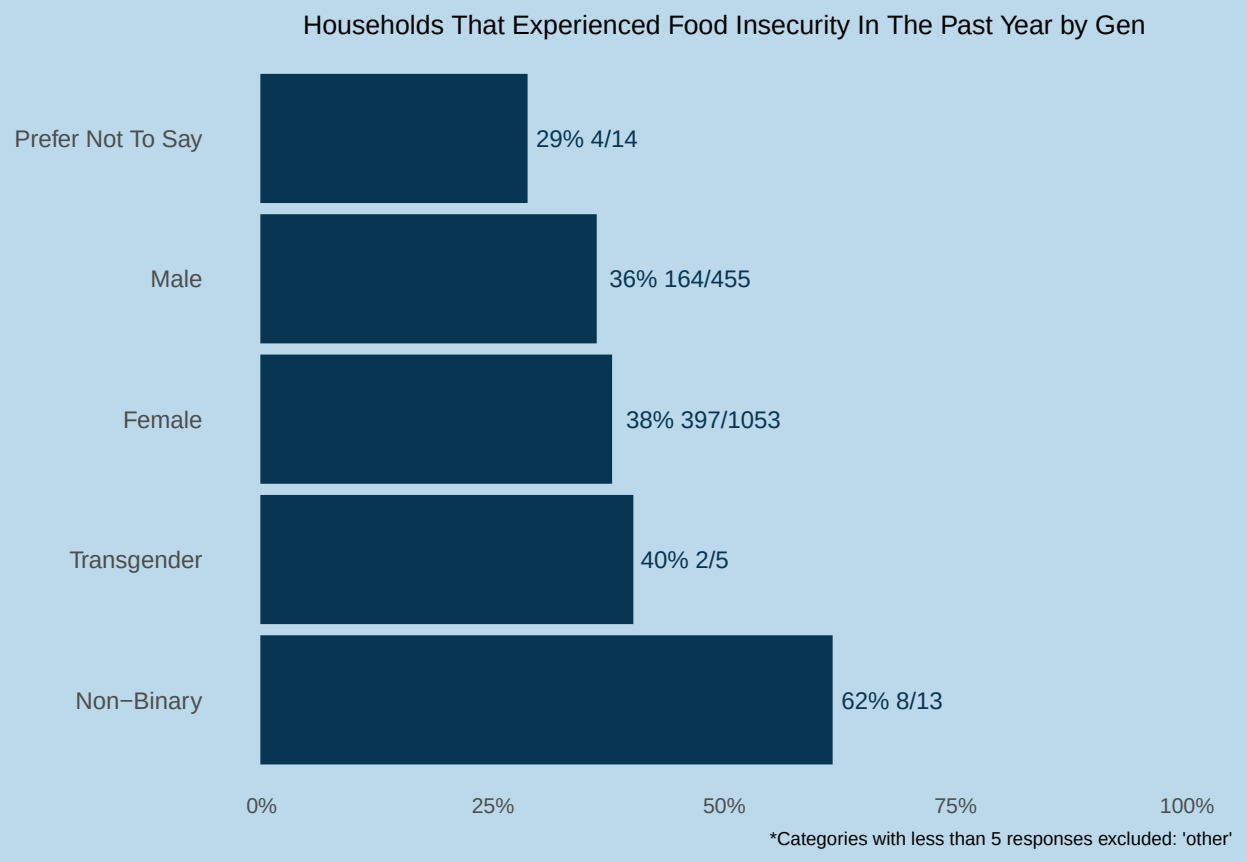
a. Find proportion of subset who are considered food insecure [21] (use binary definition above)
b. Find proportion not in subset who are considered food insecure and compare (test unequal proportions)

```
mean(wrangled$food_insec, na.rm = TRUE)
```

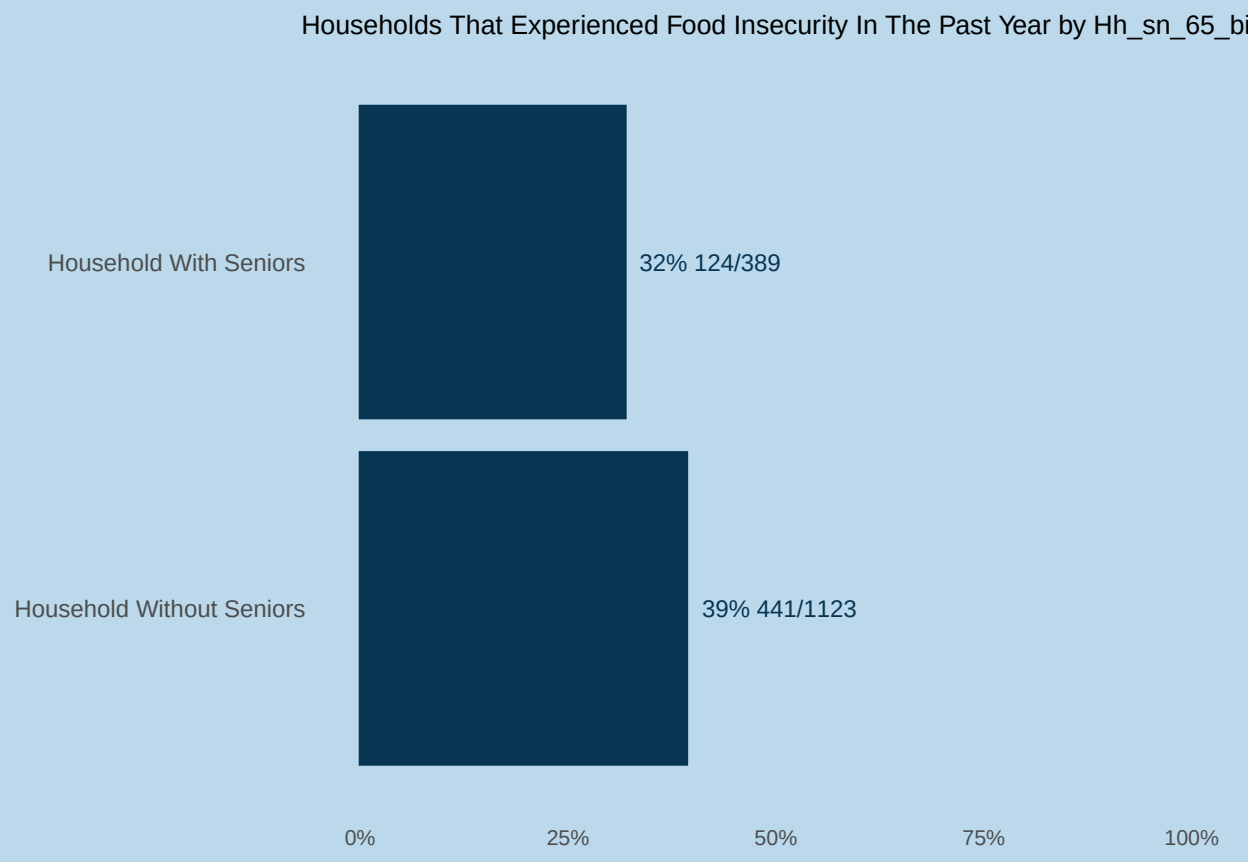
```
## [1] 0.3732988
```

```
make_plots(wrangled, fin_sec_dem, "food_insec",
           title = "Households that experienced food insecurity in the past year", show = TRUE)
```

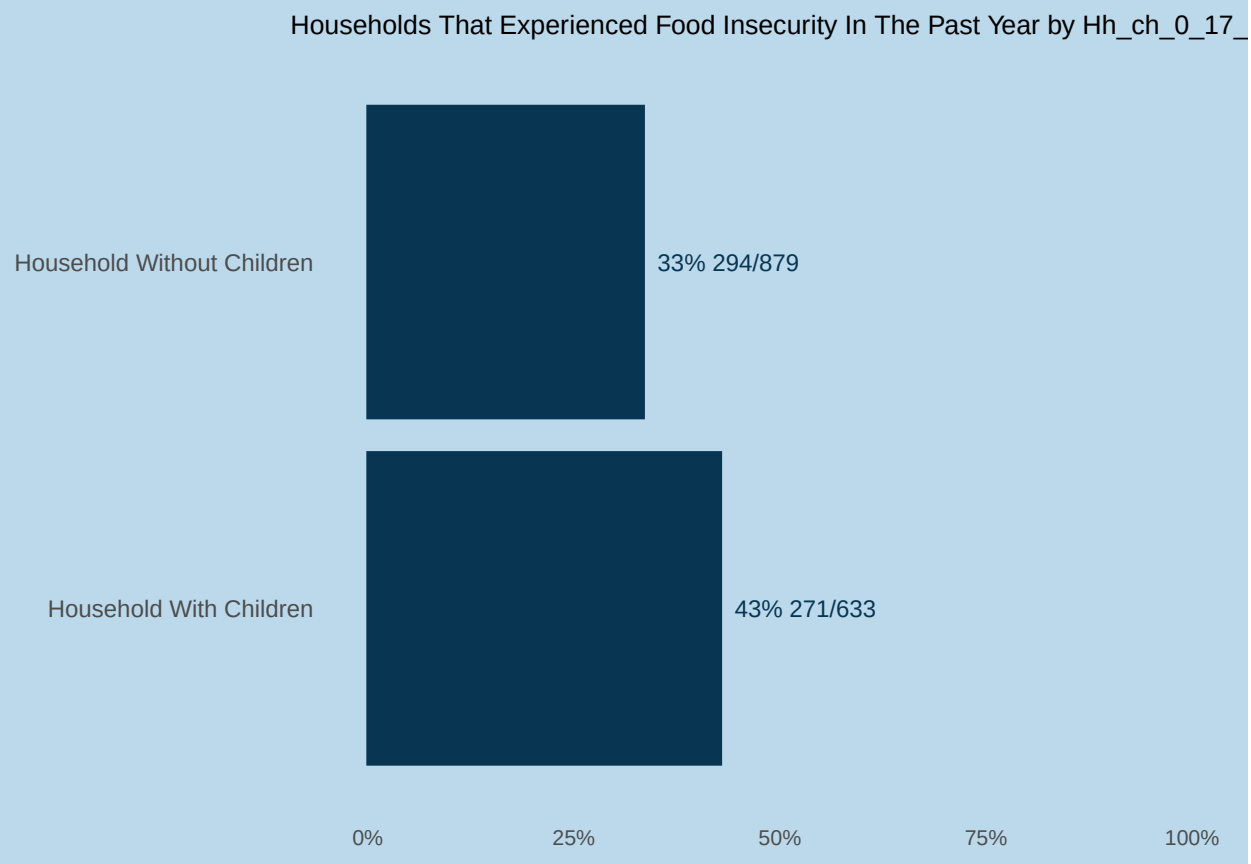
```
## $gen
## $gen$plot
```



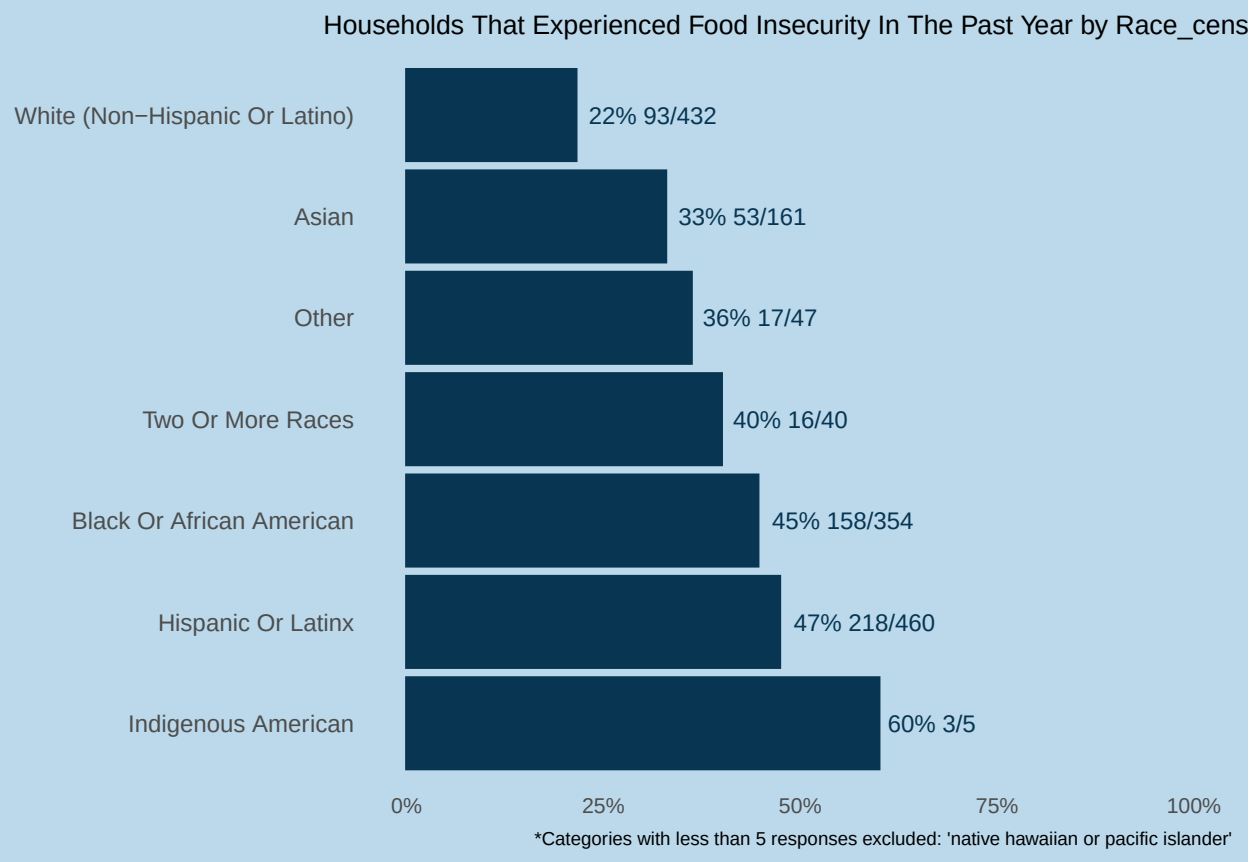

```
##
## $gen$p.values
## $gen$p.values$food_insec
##                   prefer not to say male female transgender non-binary
## prefer not to say                NA   NA     NA          NA         NA
## male                             NA   NA     NA          NA         NA
## female                           NA   NA     NA          NA         NA
## transgender                      NA   NA     NA          NA         NA
## non-binary                       NA   NA     NA          NA         NA
##
##
##
## $hh_sn_65_bi
## $hh_sn_65_bi$plot
```




```
##
## $hh_sn_65_bi$p.values
## $hh_sn_65_bi$p.values$food_insec
##                            household with seniors household without seniors
## household with seniors                         NA                        NA
## household without seniors                      NA                        NA
##
##
##
## $hh_ch_0_17_bi
## $hh_ch_0_17_bi$plot
```

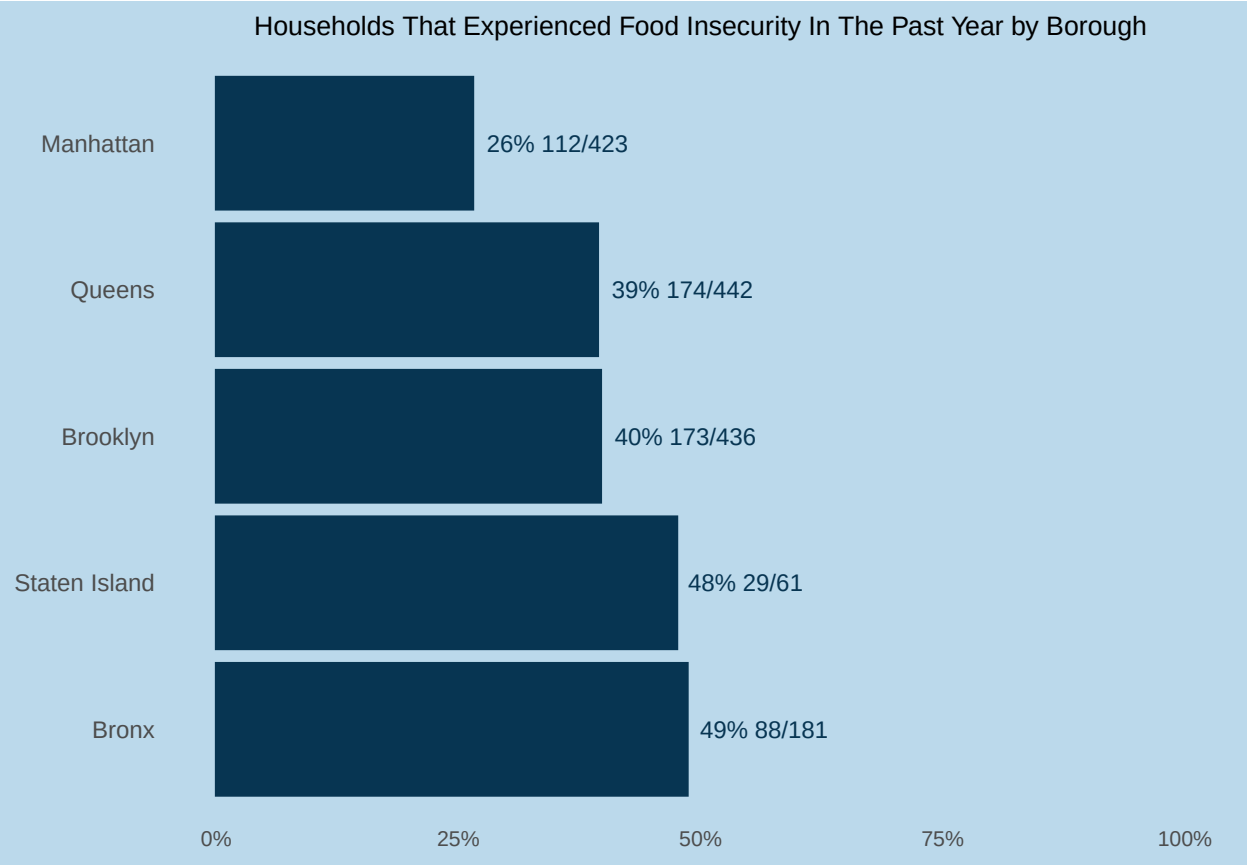



```
##
## $hh_ch_0_17_bi$p.values
## $hh_ch_0_17_bi$p.values$food_insec
##                             household without children household with children
## household without children                         NA                 0.00025
## household with children                       0.00025                      NA
##
##
##
## $race_census
## $race_census$plot
```




```
##
## $race_census$p.values
## $race_census$p.values$food_insec
##                                 white (non-hispanic or latino)  asian other
## white (non-hispanic or latino)                             NA 0.0058    NA
## asian                                                  5.8e-03     NA    NA
## other                                                      NA     NA    NA
## two or more races                                          NA     NA    NA
## black or african american                              8.2e-12     NA    NA
## hispanic or latinx                                     9.7e-16 0.0020    NA
## Indigenous American                                        NA     NA    NA
##                                 two or more races black or african american
## white (non-hispanic or latino)                NA                    8.2e-12
## asian                                         NA                         NA
## other                                         NA                         NA
## two or more races                             NA                         NA
## black or african american                     NA                         NA
## hispanic or latinx                            NA                         NA
## Indigenous American                           NA                         NA
##                                 hispanic or latinx Indigenous American
## white (non-hispanic or latino)            9.7e-16                   NA
## asian                                     2.0e-03                   NA
## other                                          NA                   NA
## two or more races                              NA                   NA
## black or african american                      NA                   NA
## hispanic or latinx                             NA                   NA
```

```
## Indigenous American                          NA                  NA
##
##
##
## $borough
## $borough$plot
```




```
##
## $borough$p.values
## $borough$p.values$food_insec
##               manhattan  queens brooklyn staten island bronx
## manhattan            NA 7.6e-05  5.4e-05        0.0012 2e-07
## queens          7.6e-05      NA       NA            NA    NA
## brooklyn        5.4e-05      NA       NA            NA    NA
## staten island   1.2e-03      NA       NA            NA    NA
## bronx           2.0e-07      NA       NA            NA    NA
```

```
cat("Plots for gen and hh_sn_65_bi do not have at least one statistically significant result.")
```

```
## Plots for gen and hh_sn_65_bi do not have at least one statistically significant result.
```