

councilverse

Councilverse is a set of packages that work in tandem to help us do our work quickly, consistently, and seamlessly (like tidyverse but for the NYCC Data Team). Councilverse currently includes the `councildown` and `councilcount` packages.

`Councildown` implements NYCC Data Team brand styling defaults for R Markdown documents, `ggplot2` plots, and `leaflet` maps.

`Councilcount` gives easy access to population data for over 100 demographic groups across NYC's different geographies.

Getting Started

Install Package

```
# install the first time
remotes::install_github("newyorkcitycouncil/councilverse", build_vignettes = TRUE)
```

Load Package

```
library(tidyverse)
library(leaflet)
library(ggplot2)
library(sf)
# load councilverse as the last package
# councilverse also loads councildown and councilcount
library(councilverse)
```

Example Project Using Councilverse, Councildown, and CouncilCount Functions

We will use `councilcount` data in our example of how to make plots and maps using `councilverse` functions.

```
# use councilcount::get_ACS_variables() to check available variables for the 2018-2022 5-Year
# American Community Survey.
census_vars <- get_ACS_variables("2022")
#> [1] "Printing data dictionary for the 2022 5-Year ACS"
# use councilcount::get_geo_estimates to read in council district data for '% work from home'
#       using 2022 data and 2013 council boundaries
# 'borough', 'communitydist', 'councildist', 'nta', 'policeprct', and 'schooldist'
#       geographies are available, along with citywide numbers (use 'city' as input)
council_geo <- get_geo_estimates(acs_year = "2022", geo = "councildist", var_codes =
  "DP03_0024E", boundary_year = "2013")
#> Reading layer `councildist-geographies_b13_2022` from data source
#>   '/Users/ravram/Library/R/arm64/4.2/library/councilcount/extdata/councildist-
#       geographies_b13_2022.geojson'
#>   using driver `GeoJSON'
```

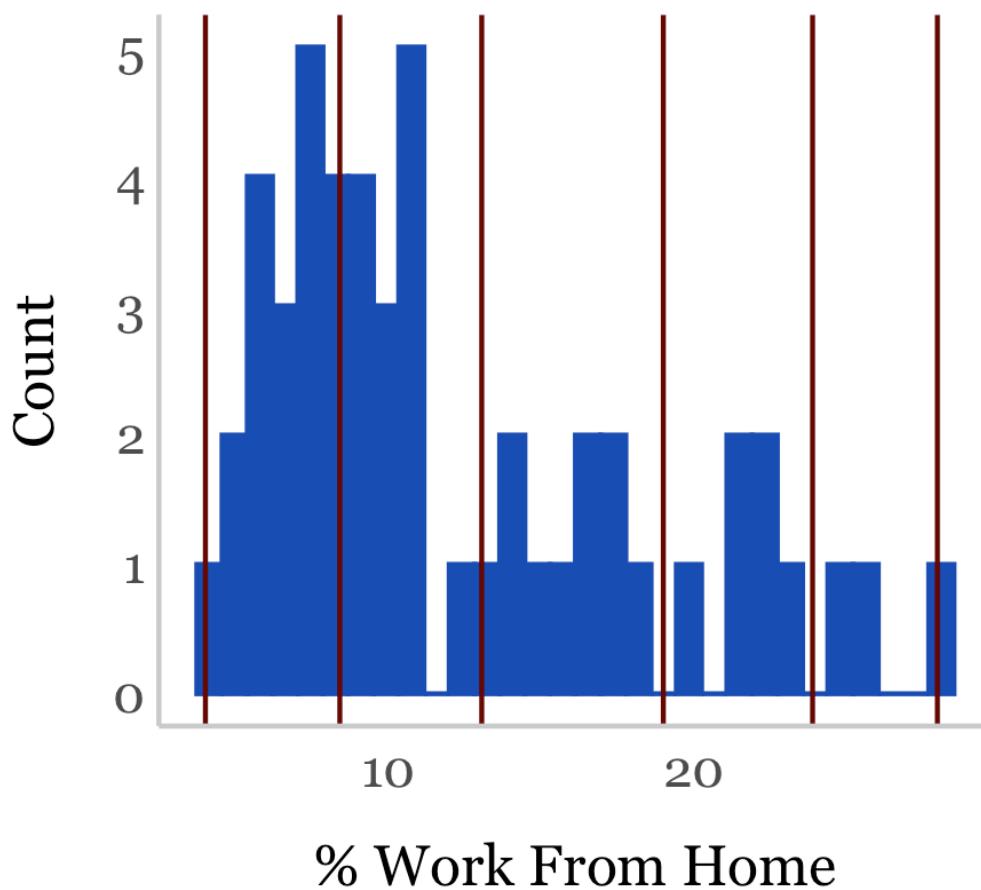
```
#> Simple feature collection with 51 features and 637 fields
#> Geometry type: MULTIPOLYGON
#> Dimension:      XY
#> Bounding box:  xmin: 913174.7 ymin: 120124.9 xmax: 1067382 ymax: 272847.3
#> Projected CRS: NAD83 / New York Long Island (ftUS)
```

Visualize Data and Determine Map Breaks

```
# check distribution of data (basic plot, without councildown)
names(council_geo)[names(council_geo) == 'DP03_0024PE'] <-  
  'percent_work_from_home_workers_16_and_older'  
wfh_hist <- ggplot(data = council_geo, aes(percent_work_from_home_workers_16_and_older)) +  
  geom_histogram(bins = 30)  
# use fisher-jenks natural breaks after visualizing data  
nat_intvl = classInt::classIntervals(council_geo$percent_work_from_home_workers_16_and_older,  
  n = 5, style = 'fisher')
```

```
# visualize breaks using councildown functions and styling
ggplot(data = council_geo, aes(percent_work_from_home_workers_16_and_older)) +  
  # use second color from nycc_palette "double" for the histogram bars  
  geom_histogram(bins = 30, fill = pal_nycc("double")[2], color = pal_nycc("double")[2]) +  
  # use first color from nycc_palette "double" for the breaks  
  geom_vline(xintercept = nat_intvl$brks, color = pal_nycc("double")[1]) +  
  labs(  
    x = "% Work From Home",  
    y = "Count",  
    title = "Histogram of Work From Home Data",  
    color = ""  
) +  
  # use councildown::theme_nycc() for ggplot styling  
  theme_nycc() +  
  # remove the legend  
  theme(legend.position="none")
```

Histogram of Work From



Make Palette for Map

```
# the function councildown::colorBin has default options for palette, bins, and na.color
pal_council = colorBin(
  # use nycc_blue, which is also the default palette for councildown::colorBin
  palette = "nycc_blue",
  # round to make sure data in the bottom and top bin are not left out
  bins = round(nat_intvl$brks,2),
  domain = council_geo$percent_work_from_home_workers_16_and_older,
  # use the default NA color from councildown::colorBin
  na.color = "#FFFFFF"
)
```

Create Map

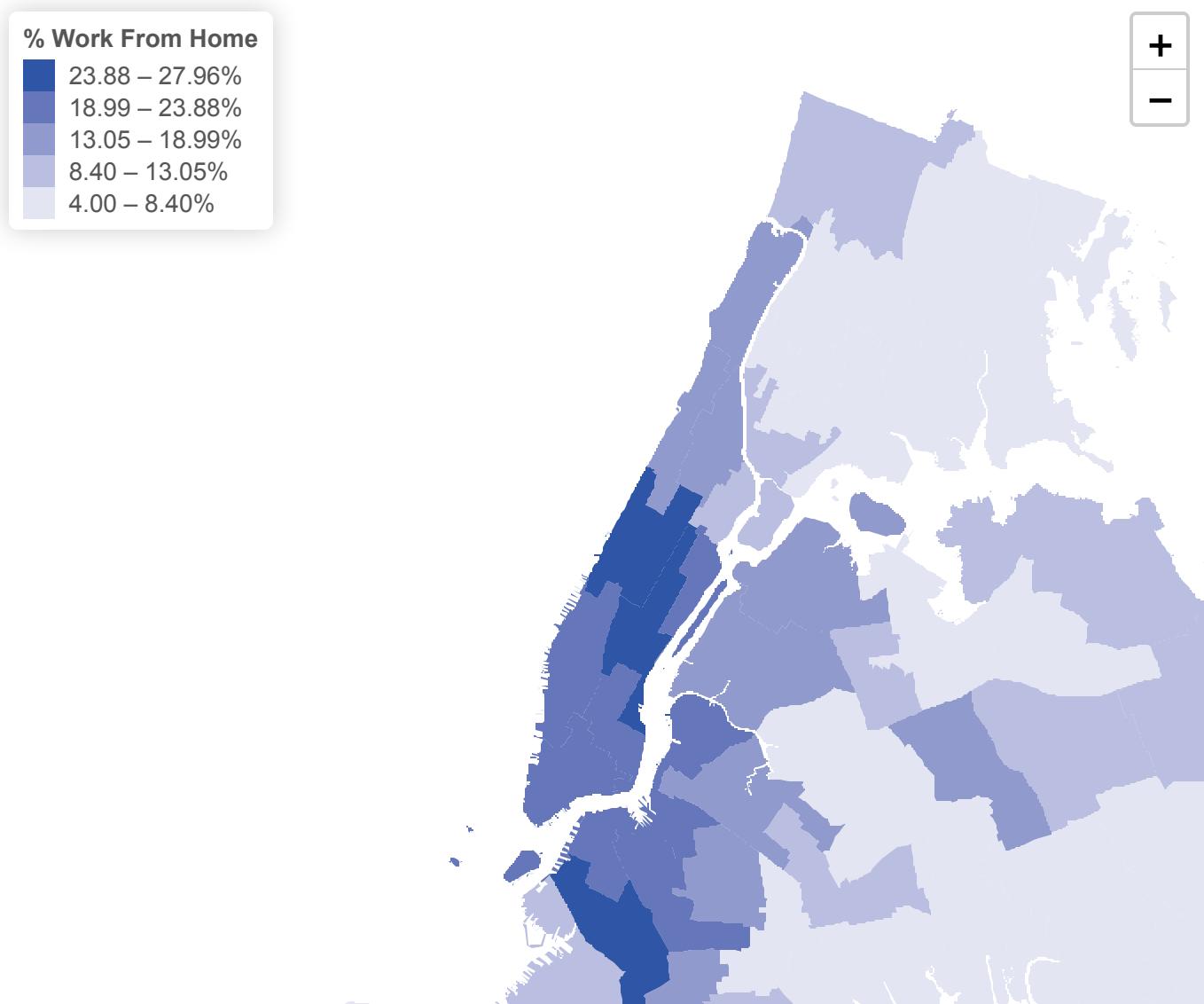
```
# transform
council_geo <- st_transform(council_geo, crs = 4326)
#build map
map <- leaflet() %>%
  # Use councildown::addCouncilStyle() for leaflet styling
  addCouncilStyle() %>%
```

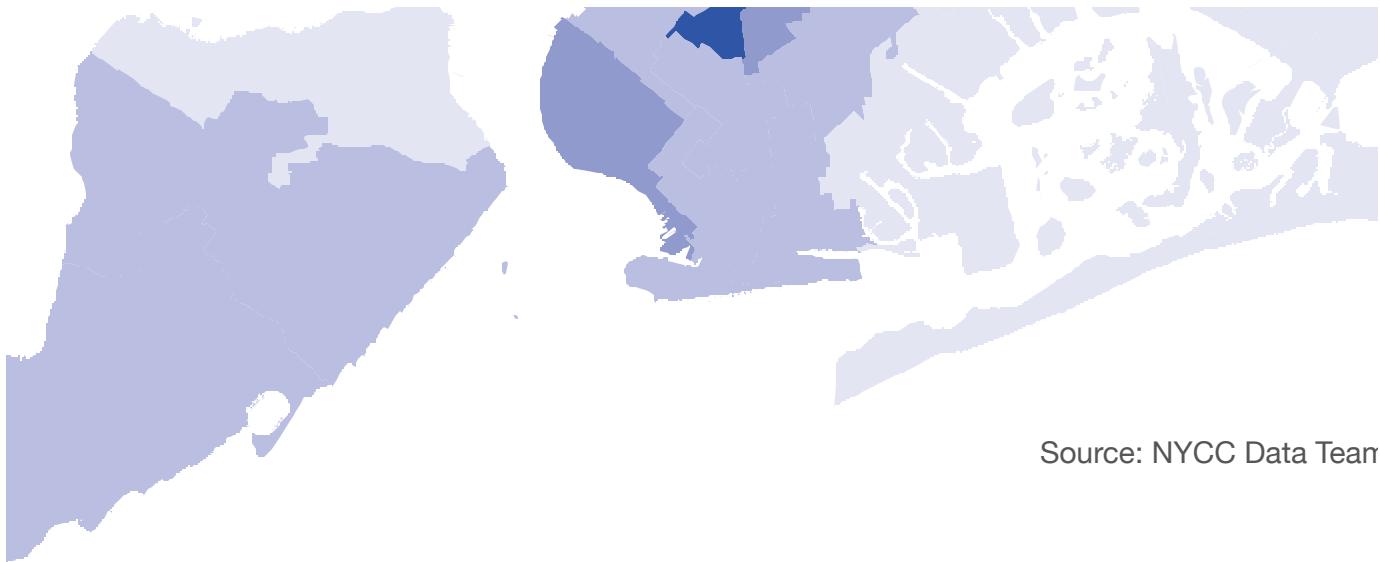
```

# Use the councildown::addPolygons default smoothFactor and weight
addPolygons(data = council_geo,
            fillColor = ~pal_council(percent_work_from_home_workers_16_and_older),
            fillOpacity = 1,
            # Use councildown::councilPopup to style popups
            label = ~lapply(councilPopup(
                paste0("<h3>", paste0("CD: ", councildist), "</h3>",
                      "<p>", paste0("Work From Home: ",
                                     percent_work_from_home_workers_16_and_older, "%"), "</p>")),
                htmltools::HTML))) %>%
# Use councildown::addLegend_decreasing to reverse the ordering of the legend
addLegend_decreasing(position = "topleft", pal = pal_council,
                      title = paste0("% Work From Home"),
                      values = c(0, 1), opacity = 1, decreasing = TRUE,
                      labFormat = labelFormat(suffix = "%"),
                      na.label = "NA") %>%
# Use councildown::addSourceText to add source text on the bottom right of the map
addSourceText(lat = -73.75, lon = 40.53, "Source: NYCC Data Team")

```

map





Source: NYCC Data Team

[Leaflet](#)

```
# can add 2013 or 2023 council district boundaries to the map
map_w_dists <- map %>%
  # use councildown::addCouncilStyle to add the boundaries to the existing map
  addCouncilStyle(add_dists = T, dist_year = "2023")

# note: can access council district shapefiles directly through the package
councildown::nycc_cd_13 # 2013 council district lines
councildown::nycc_cd_23 # 2023 council district lines
```

Save Map

```
# save the map as static png
# use councilverse::file_name_generator to create standardized name for file
map_png <- file_name_generator(description = "council_district_percent_work_from_home",
                                 date_year = 2022, file_extension = ".png")
# save the map using councildown::mapshot default zoom, vwidth, vheight, remove_controls
mapshot(map, file = glue::glue("visuals/{map_png}"))

# save the map as html
map_html <- file_name_generator(description = "council_district_percent_work_from_home",
                                 date_year = 2022, file_extension = ".html")
# save leaflet html (this function is not a part of councilverse)
htmlwidgets::saveWidget(map, file=glue::glue("visuals/{map_html}"), selfcontained = T)
```

Reference

CouncilVerse

Graphs and Tables

`encodeGraphic()` – Graphics to raw HTML
`gt_table()` – gt table to raw HTML helper function

Misc

`file_name_generator()` – Helper function for creating file names using accepted guidelines
`unzip_sf()` – Helper function for loading in shapefiles that come zipped

CouncilCount

Population Estimates

`get_bbl_estimates()` – Generates a dataframe that provides population estimates at the BBL level. There are also columns for latitude and longitude, which allow for spatial joins if aggregation to other geography levels is desired.

`get_ACS_variables()` – Provides information on all of the available ACS demographic variables that can be accessed via `get_geo_estimates()` for a specified survey year.

`get_geo_estimates()` – Creates a dataframe that provides population estimates for selected demographic variables along chosen geographic boundaries (e.g. council district, borough, etc.) for a chosen ACS 5-Year survey.

CouncilDown

Plots

`theme_nycc()` – A `ggplot2` theme that uses Council fonts and style guidelines to produce plots
`scale_fill_nycc()`, `scale_color_nycc()` – Color and fill scales for `ggplot2` plots. Used to replace `scale_color_discrete()`, `scale_color_continuous()`, `scale_fill_discrete()`, and `scale_fill_continuous()`

Colors

`pal_nycc()` – Makes a color palette using Council colors
`nycc_pal()` DEPRECATED. Use `pal_nycc` instead

Maps

`addCouncilStyle()` – Adds Council styles including tiles, council district outlines, and fonts to a `leaflet` map
`addSourceText()` – Adds Council “Source” note in the bottom right of `leaflet` map
`addPolygons()` – The `leaflet` function `addPolygons` with default `smoothFactor` and `weight`
`colorBin()` – The `leaflet` function `colorBin` with default `palette`, `bins`, `na.color`
`councilPopup()` – Basic styling for `leaflet` popups
`mapshot()` – Saves `leaflet` maps as a static png image and defaults map saves with standardized `width`, `height`, and `zoom`

`addLegend_decreasing()` – The leaflet function `addLegend` but with the option for the highest number to be at the top of the legend

Data

`nycc_cd_13` – 2013-2023 NYC Council District sf collection

`nycc_cd_23` – 2023-2033 NYC Council District sf collection

Templates

`council_html()` – Render a Council HTML report

`council_pdf()` – Render a Council PDF report

Misc

`pretty_date` – Make a pretty date