simulated

2024-04-22

```r
# Load libraries
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ----------------------- tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.0     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## v purrr     1.0.2
## -- Conflicts ------------------------------------------- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```r
library(lfe)
```

```
## Loading required package: Matrix
##
## Attaching package: 'Matrix'
##
## The following objects are masked from 'package:tidyr':
##
##     expand, pack, unpack
```

```r
library(stargazer)
```

```
##
## Please cite as:
##
##  Hlavac, Marek (2022). stargazer: Well-Formatted Regression and Summary Statistics Tables.
##  R package version 5.2.3. https://CRAN.R-project.org/package=stargazer
```

```r
# Load datasets
simulated_covariates <- read.csv("C:/Users/Lenovo/Desktop/cancer/simulated/simulated_covariates.csv")
simulated_rents <- read.csv("C:/Users/Lenovo/Desktop/cancer/simulated/simulated_rents.csv")
```

```r
# Check the datasets
View(simulated_covariates)
View(simulated_rents)
```

```
# Join datasets by 'zipcode' using left join
dat <- left_join(simulated_rents, simulated_covariates, by = "zipcode")
```

```
## Warning in left_join(simulated_rents, simulated_covariates, by = "zipcode"): Detected an unexpected m
## i Row 2 of 'x' matches multiple rows in 'y'.
## i Row 138 of 'y' matches multiple rows in 'x'.
## i If a many-to-many relationship is expected, set 'relationship =
##   "many-to-many"' to silence this warning.
```

```
summary(dat)
```

```
##     Location            zipcode               rent              location
##  Length:8422        Length:8422         Min.   :-5.2222    Length:8422
##  Class :character   Class :character    1st Qu.:-0.1382    Class :character
##  Mode  :character   Mode  :character    Median : 1.0734    Mode  :character
##                                         Mean   : 0.9826
##                                         3rd Qu.: 2.1729
##                                         Max.   : 5.9686
##
##      urban            population          r_vote             migration
##  Min.   :0.000    Min.   :  3092     Min.   :-16.091    Min.   :-62.491
##  1st Qu.:0.000    1st Qu.: 24649     1st Qu.: -8.918    1st Qu.:-27.469
##  Median :1.000    Median : 57290     Median : -4.829    Median :-15.587
##  Mean   :0.747    Mean   : 63915     Mean   : -3.250    Mean   :-11.365
##  3rd Qu.:1.000    3rd Qu.:106161     3rd Qu.:  0.907    3rd Qu.:  3.381
##  Max.   :1.000    Max.   :164039     Max.   : 18.816    Max.   : 73.086
##  NA's   :4607     NA's   :4607       NA's   :4607       NA's   :4607
```

```
# Model 1: Linear regression with 'r_vote' as predictor
m1 <- lm(rent ~ r_vote, data = dat)
stargazer(m1, type = "text")
```

```
##
## ===============================================
## 						Dependent variable:
## 				  ----------------------------
## 						   rent
## -----------------------------------------------
## r_vote					 -0.037***
## 						   (0.003)
##
## Constant				  0.930***
## 						   (0.028)
##
## -----------------------------------------------
## Observations			   3,815
## R2					   0.035
## Adjusted R2			   0.035
## Residual Std. Error     1.642 (df = 3813)
## F Statistic		 138.144*** (df = 1; 3813)
## ===============================================
## Note:			   *p<0.1; **p<0.05; ***p<0.01
```

```
# Model 2: Linear regression with 'r_vote' and 'migration' as predictors
m2 <- lm(rent ~ r_vote + migration, data = dat)
stargazer(m2, type = "text")
```

```
##
## =================================================
##                         Dependent variable:
##                      ----------------------------
##                                 rent
## -------------------------------------------------
## r_vote                         0.045***
##                                (0.005)
##
## migration                     -0.039***
##                                (0.002)
##
## Constant                       0.751***
##                                (0.028)
##
## -------------------------------------------------
## Observations                    3,815
## R2                              0.142
## Adjusted R2                     0.141
## Residual Std. Error      1.549 (df = 3812)
## F Statistic          314.416*** (df = 2; 3812)
## =================================================
## Note:              *p<0.1; **p<0.05; ***p<0.01
```

```
# Model 3: Linear regression with interaction term 'r_vote*migration'
m3 <- lm(rent ~ r_vote + migration + r_vote*migration, data = dat)
stargazer(m3, type = "text")
```

```
##
## =================================================
##                         Dependent variable:
##                      ----------------------------
##                                 rent
## -------------------------------------------------
## r_vote                         0.045***
##                                (0.005)
##
## migration                     -0.039***
##                                (0.002)
##
## r_vote:migration               0.0001
##                                (0.0001)
##
## Constant                       0.729***
##                                (0.037)
##
## -------------------------------------------------
## Observations                    3,815
## R2                              0.142
```

```
## Adjusted R2                          0.141
## Residual Std. Error      1.549 (df = 3811)
## F Statistic          209.872*** (df = 3; 3811)
## ================================================
## Note:                   *p<0.1; **p<0.05; ***p<0.01
```

```
# Fixed effects model with 'location' as fixed effect
m4 <- felm(rent ~ r_vote + urban + migration | location, data = dat)
```

```
## Warning in chol.default(mat, pivot = TRUE, tol = tol): the matrix is either
## rank-deficient or not positive definite
```

```
stargazer(m4, type = "text")
```

```
##
## ================================================
##                    Dependent variable:
##                  ---------------------------
##                             rent
## -----------------------------------------------
## r_vote                      0.020
##                            (0.037)
##
## urban
##
##
## migration                 -0.040***
##                            (0.003)
##
## -----------------------------------------------
## Observations                3,803
## R2                          0.145
## Adjusted R2                 0.143
## Residual Std. Error     1.548 (df = 3790)
## ================================================
## Note:                   *p<0.1; **p<0.05; ***p<0.01
```