```
-------------------------------------------------------------------------------
> -------------------------------------------------------------------------------
> -----
      name:  <unnamed>
       log:  C:\KY-SNAP-ABAWD-Waivers/Log_Files/Data_Analysis.log
  log type:  text
 opened on:  24 Aug 2025, 22:54:21

.
. /*********************************************
> FILE NAME: Data_Analysis
> AUTHOR: Dylan Craig
> DATE CREATED: November 24, 2024
> DATE MODIFIED: November 26, 2024
>
> PURPOSE: Collapse SNAP-related data by WaiverStatus, Year, and Month,
>          and create a final, merged dataset.
> *********************************************/
.
. // Echo header into log
. di as txt "*********************************************"
*********************************************

. di as txt "FILE NAME: Data_Analysis"
FILE NAME: Data_Analysis

. di as txt "AUTHOR: Dylan Craig"
AUTHOR: Dylan Craig

. di as txt "DATE CREATED: November 24, 2024"
DATE CREATED: November 24, 2024

. di as txt "DATE MODIFIED: November 26, 2024"
DATE MODIFIED: November 26, 2024

. di as txt "PURPOSE: Collapse SNAP-related data by WaiverStatus, Year, and Month,"
PURPOSE: Collapse SNAP-related data by WaiverStatus, Year, and Month,

. di as txt "         and create a final, merged dataset."
         and create a final, merged dataset.

. di as txt "*********************************************"
*********************************************

.
. // ------------------------ Step 1: Weighted Means ------------------
. use "$base_path/Data_Outputs/Final_Cleaned_Data/Final_Cleaned_Data.dta", clear

.
. collapse (mean) Ann_Perc_NH_White Ann_Perc_NH_Black Ann_Perc_NH_AIAN Ann_Perc_NH_Asi
> an ///
>          Ann_Perc_NH_NHOPI Ann_Perc_NH_Other Ann_Perc_NH_TwoOrMore Ann_Perc_Hispanic
> _Latino ///
>          Mnthly_Unemployment_Rate Ann_FoodInsecurePerc Ann_RuralPopPerc Ann_Perc_Bel
> ow_Poverty Quart_Wkly_Wage //
>          [aw=Ann_Population], by(WaiverStatus Year Month)

.
. save "$base_path/Data_Outputs/Final_Collapsed_Data/temp_weighted_means.dta", replace
file C:\KY-SNAP-ABAWD-Waivers/Data_Outputs/Final_Collapsed_Data/temp_weighted_means.dt
> a saved
```

```
.
. // ------------------------ Step 2: Education Weighted Means --------
. use "$base_path/Data_Outputs/Final_Cleaned_Data/Final_Cleaned_Data.dta", clear

.
. collapse (mean) Ann_Perc_HS_25_Over Ann_Perc_Bach_25_Over [aw=Ann_25_Over_Pop], ///
>          by(WaiverStatus Year Month)

.
. save "$base_path/Data_Outputs/Final_Collapsed_Data/temp_education_means.dta", replac
> e
file C:\KY-SNAP-ABAWD-Waivers/Data_Outputs/Final_Collapsed_Data/temp_education_means.d
> ta saved

.
. // ------------------------ Step 3: Sums ----------------------------
. use "$base_path/Data_Outputs/Final_Cleaned_Data/Final_Cleaned_Data.dta", clear

. gen count_dummy = 1

.
. collapse (sum) Mnthly_WorkReg_16_59 Mnthly_ActiveSNAP_18_49 Mnthly_WorkReg_18_49 Mnt
> hly_Working80Hrs ///
>     Mnthly_Dep_Child Mnthly_Pregnancy Mnthly_WEPVES Mnthly_ABAWD_Comply Mnthly_STLP
> ///
>     Mnthly_ActiveSNAP_18_52 Mnthly_WorkReg_18_52 Mnthly_Veteran Mnthly_Homeless Mnth
> ly_FosterCare ///
>     Mnthly_ActiveSNAP_18_54 Mnthly_WorkReg_18_54 (sum) Number_Counties = count_dummy
> , ///
>     by(WaiverStatus Year Month)

.
. save "$base_path/Data_Outputs/Final_Collapsed_Data/temp_sums.dta", replace
file C:\KY-SNAP-ABAWD-Waivers/Data_Outputs/Final_Collapsed_Data/temp_sums.dta saved

.
. // ------------------------ Step 4: Generate All Observations --------
. clear

. set obs 192  // 8 years (2017-2024) * 12 months * 2 WaiverStatus
Number of observations (_N) was 0, now 192.

. gen Year = 2017 + int((_n-1)/24)

. gen Month = mod(int((_n-1)/2), 12) + 1

. gen WaiverStatus = mod((_n-1), 2)

.
. label define WaiverStatus_lbl 0 "Not Waived" 1 "Waived"

. label values WaiverStatus WaiverStatus_lbl

.
. drop if Year == 2024 & Month >= 11
(4 observations deleted)

.
. merge 1:1 WaiverStatus Year Month using "$base_path/Data_Outputs/Final_Collapsed_Dat
> a/temp_weighted_means.dta", keep(master match) nogen
(label WaiverStatus_lbl already defined)

    Result                      Number of obs
    -----------------------------------------
    Not matched                            62
        from master                        62
        from using                          0

    Matched                               126
    -----------------------------------------
```

```
. merge 1:1 WaiverStatus Year Month using "$base_path/Data_Outputs/Final_Collapsed_Dat
> a/temp_education_means.dta", keep(master match) nogen
(label WaiverStatus_lbl already defined)

    Result                      Number of obs
    -----------------------------------------
    Not matched                            80
        from master                        80
        from using                          0

    Matched                               108
    -----------------------------------------

. merge 1:1 WaiverStatus Year Month using "$base_path/Data_Outputs/Final_Collapsed_Dat
> a/temp_sums.dta", keep(master match) nogen
(label WaiverStatus_lbl already defined)

    Result                      Number of obs
    -----------------------------------------
    Not matched                            42
        from master                        42
        from using                          0

    Matched                               146
    -----------------------------------------

.
. // ------------------------ Step 5: Label Variables -----------------
. label variable Ann_Perc_NH_White "Annual Weighted Avg. Percent Non-Hispanic White"

. label variable Ann_Perc_NH_Black "Annual Weighted Avg. Percent Non-Hispanic Black"

. label variable Ann_Perc_NH_AIAN "Annual Weighted Avg. Percent Non-Hispanic AIAN"

. label variable Ann_Perc_NH_Asian "Annual Weighted Avg. Percent Non-Hispanic Asian"

. label variable Ann_Perc_NH_NHOPI "Annual Weighted Avg. Percent Non-Hispanic NHOPI"

. label variable Ann_Perc_NH_Other "Annual Weighted Avg. Percent Non-Hispanic Other Ra
> ce"

. label variable Ann_Perc_NH_TwoOrMore "Annual Weighted Avg. Percent Non-Hispanic Two
> or More Races"

. label variable Ann_Perc_Hispanic_Latino "Annual Weighted Avg. Percent Hispanic or La
> tino"

. label variable Ann_RuralPopPerc "Annual Weighted Avg. Percent Rural Population"

.
. label variable Mnthly_Unemployment_Rate "Monthly Weighted Avg. Unemployment Rate"

. label variable Ann_FoodInsecurePerc "Annual Weighted Avg. Percent Food Insecure"

. label variable Ann_Perc_Below_Poverty "Annual Weighted Avg. Percent Below Poverty Li
> ne"

. label variable Quart_Wkly_Wage "Quarterly Weighted Avg. Weekly Wage (All Industries)
> "
```

```
. label variable Ann_Perc_HS_25_Over "Annual Weighted Avg. Percent with HS Diploma or
> Higher (25+)"

. label variable Ann_Perc_Bach_25_Over "Annual Weighted Avg. Percent with Bachelor's D
> egree or Higher (25+)"

.
. label variable Mnthly_ActiveSNAP_18_49 "Monthly Total SNAP Participants Aged 18-49"

. label variable Mnthly_ActiveSNAP_18_52 "Monthly Total SNAP Participants Aged 18-52"

. label variable Mnthly_ActiveSNAP_18_54 "Monthly Total SNAP Participants Aged 18-54"

. label variable Mnthly_Veteran "Monthly Total Veterans"

. label variable Mnthly_Homeless "Monthly Total Homeless"

. label variable Mnthly_FosterCare "Monthly Total Foster Care Youth"

. label variable Mnthly_WorkReg_16_59 "Monthly Total Work-Registered (16-59)"

. label variable Mnthly_WorkReg_18_49 "Monthly Total Work-Registered (18-49)"

. label variable Mnthly_WorkReg_18_52 "Monthly Total Work-Registered (18-52)"

. label variable Mnthly_WorkReg_18_54 "Monthly Total Work-Registered (18-54)"

. label variable Mnthly_Working80Hrs "Monthly Total Working >80 Hours"

. label variable Mnthly_Dep_Child "Monthly Total Dependent Children"

. label variable Mnthly_Pregnancy "Monthly Total Pregnant Individuals"

. label variable Mnthly_WEPVES "Monthly Total WEP/VES Participants"

. label variable Mnthly_ABAWD_Comply "Monthly Total ABAWDs Subject to Work Requirement
> s"

. label variable Mnthly_STLP "Monthly Total STLP Participants"

.
. // ------------------------ Step 6: Summary Tables ------------------
. * Economic Variables
. outsum Mnthly_Unemployment_Rate Ann_FoodInsecurePerc Ann_Perc_Below_Poverty Quart_Wk
> ly_Wage ///
>     using "$base_path/Visualizations/economics_means.txt" if WaiverStatus==1, ///
>     ctitle("Waived Counties") title("Economic Variables Means") replace

. outsum Mnthly_Unemployment_Rate Ann_FoodInsecurePerc Ann_Perc_Below_Poverty Quart_Wk
> ly_Wage ///
>     using "$base_path/Visualizations/economics_means.txt" if WaiverStatus==0, ///
>     ctitle("Non Waived Counties") append

.
. * Demographic Variables
. outsum Ann_Perc_NH_White Ann_Perc_NH_Black Ann_Perc_Hispanic_Latino Ann_Perc_NH_Asia
> n ///
>        Ann_Perc_NH_AIAN Ann_Perc_NH_NHOPI Ann_Perc_NH_Other Ann_Perc_NH_TwoOrMore //
> /
>        Ann_RuralPopPerc Ann_Perc_HS_25_Over Ann_Perc_Bach_25_Over ///
>     using "$base_path/Visualizations/demographics_means.txt" if WaiverStatus==1, ///
>     ctitle("Waived Counties") title("Demographic Variables Means") replace
```

```
. outsum Ann_Perc_NH_White Ann_Perc_NH_Black Ann_Perc_Hispanic_Latino Ann_Perc_NH_Asia
> n ///
>        Ann_Perc_NH_AIAN Ann_Perc_NH_NHOPI Ann_Perc_NH_Other Ann_Perc_NH_TwoOrMore //
> /
>        Ann_RuralPopPerc Ann_Perc_HS_25_Over Ann_Perc_Bach_25_Over ///
>     using "$base_path/Visualizations/demographics_means.txt" if WaiverStatus==0, ///
>     ctitle("Non Waived Counties") append

.
. * SNAP Variables
. outsum Mnthly_WorkReg_16_59 Mnthly_ActiveSNAP_18_49 Mnthly_WorkReg_18_49 Mnthly_Work
> ing80Hrs ///
>        Mnthly_Dep_Child Mnthly_Pregnancy Mnthly_WEPVES Mnthly_ABAWD_Comply Mnthly_ST
> LP ///
>        Mnthly_ActiveSNAP_18_52 Mnthly_WorkReg_18_52 Mnthly_Veteran Mnthly_Homeless M
> nthly_FosterCare ///
>        Mnthly_ActiveSNAP_18_54 Mnthly_WorkReg_18_54 ///
>     using "$base_path/Visualizations/snap_means.txt" if WaiverStatus==1, ///
>     ctitle("Waived Counties") title("SNAP Variables Means") replace

. outsum Mnthly_WorkReg_16_59 Mnthly_ActiveSNAP_18_49 Mnthly_WorkReg_18_49 Mnthly_Work
> ing80Hrs ///
>        Mnthly_Dep_Child Mnthly_Pregnancy Mnthly_WEPVES Mnthly_ABAWD_Comply Mnthly_ST
> LP ///
>        Mnthly_ActiveSNAP_18_52 Mnthly_WorkReg_18_52 Mnthly_Veteran Mnthly_Homeless M
> nthly_FosterCare ///
>        Mnthly_ActiveSNAP_18_54 Mnthly_WorkReg_18_54 ///
>     using "$base_path/Visualizations/snap_means.txt" if WaiverStatus==0, ///
>     ctitle("Non Waived Counties") append

.
. // ------------------------ Step 7: Regressions ----------------------
. use "$base_path/Data_Outputs/Final_Cleaned_Data/Final_Cleaned_Data.dta", clear

. gen YearMonth = ym(Year, Month)

. format YearMonth %tm

. egen COUNTY_num = group(COUNTY), label

. xtset COUNTY_num YearMonth

Panel variable: COUNTY_num (unbalanced)
 Time variable: YearMonth, 2017m1 to 2024m12, but with gaps
         Delta: 1 month

.
. global econ_controls Quart_Wkly_Wage Ann_Perc_Below_Poverty

. global demo_controls Ann_Perc_NH_White Ann_Perc_NH_Black Ann_Perc_Hispanic_Latino //
> /
>     Ann_Perc_HS_25_Over Ann_Perc_Bach_25_Over Ann_RuralPopPerc

.
. reghdfe Ann_FoodInsecurePerc WaiverStatus Mnthly_Unemployment_Rate, ///
>     absorb(COUNTY YearMonth) vce(cluster COUNTY_num)
(MWFE estimator converged in 2 iterations)

HDFE Linear regression                            Number of obs   =     11,160
Absorbing 2 HDFE groups                           F(   2,    119) =      10.68
Statistics robust to heteroskedasticity           Prob > F        =     0.0001
                                                  R-squared       =     0.9153
                                                  Adj R-squared   =     0.9137
                                                  Within R-sq.    =     0.0262
Number of clusters (COUNTY_num) =        120      Root MSE        =     0.0099
```

```
                                    (Std. err. adjusted for 120 clusters in COUNTY_
> num)
------------------------------------------------------------------------------
> ----
                           |               Robust
    Ann_FoodInsecurePerc | Coefficient  std. err.      t    P>|t|     [95% conf. inter
> val]
---------------------------+--------------------------------------------------------
> ----
           WaiverStatus |  -.0026006   .0015621    -1.66   0.099    -.0056936    .000
> 4925
Mnthly_Unemployment_Rate |  -.2035254   .0485276    -4.19   0.000     -.299615   -.107
> 4358
                 _cons |   .1704409   .0027703    61.52   0.000     .1649554    .175
> 9263
------------------------------------------------------------------------------
> ----

Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+---------------------------------------|
      COUNTY |       120         120           0    *|
   YearMonth |        93           1          92     |
-----------------------------------------------------+
* = FE nested within cluster; treated as redundant for DoF computation

. outreg2 using "$base_path/Visualizations/Regression_Table.doc", ///
>     bdec(4) title("Regression Estimates: Annual Food Insecurity Rate") ///
>     cttop("Dependent Variable: Annual Food Insecurity Percentage") ///
>     ctitle("Model 1: Unemployment Rate Control") word replace
C:\KY-SNAP-ABAWD-Waivers/Visualizations/Regression_Table.doc
dir : seeout

.
. reghdfe Ann_FoodInsecurePerc WaiverStatus Mnthly_Unemployment_Rate $econ_controls, /
> //
>     absorb(COUNTY YearMonth) vce(cluster COUNTY_num)
(MWFE estimator converged in 2 iterations)

HDFE Linear regression                            Number of obs   =      8,640
Absorbing 2 HDFE groups                           F(   4,    119) =      15.73
Statistics robust to heteroskedasticity           Prob > F        =     0.0000
                                                  R-squared       =     0.9267
                                                  Adj R-squared   =     0.9250
                                                  Within R-sq.    =     0.1024
Number of clusters (COUNTY_num) =        120      Root MSE        =     0.0088

                                    (Std. err. adjusted for 120 clusters in COUNTY_
> num)
------------------------------------------------------------------------------
> ----
                           |               Robust
    Ann_FoodInsecurePerc | Coefficient  std. err.      t    P>|t|     [95% conf. inter
> val]
---------------------------+--------------------------------------------------------
> ----
           WaiverStatus |   -.007579   .0019784    -3.83   0.000    -.0114964   -.003
> 6616
Mnthly_Unemployment_Rate |  -.1841566   .0365652    -5.04   0.000    -.2565595   -.111
> 7538
        Quart_Wkly_Wage |  -.0000445   9.09e-06    -4.90   0.000    -.0000625   -.000
> 0266
  Ann_Perc_Below_Poverty |  -.0609791   .0309672    -1.97   0.051    -.1222972    .000
> 3391
                 _cons |   .2216757   .0097096    22.83   0.000     .2024498    .240
> 9016
------------------------------------------------------------------------------
> ----
```

```
Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+---------------------------------------|
      COUNTY |       120         120           0    *|
   YearMonth |        72           1          71     |
-----------------------------------------------------+
* = FE nested within cluster; treated as redundant for DoF computation

. outreg2 using "$base_path/Visualizations/Regression_Table.doc", ///
>     bdec(4) ctitle("Model 2: Other Economic Controls") word append
C:\KY-SNAP-ABAWD-Waivers/Visualizations/Regression_Table.doc
dir : seeout

.
. reghdfe Ann_FoodInsecurePerc WaiverStatus Mnthly_Unemployment_Rate $econ_controls $d
> emo_controls, ///
>     absorb(COUNTY YearMonth) vce(cluster COUNTY_num)
(MWFE estimator converged in 2 iterations)

HDFE Linear regression                            Number of obs   =      8,640
Absorbing 2 HDFE groups                           F(  10,    119) =       8.65
Statistics robust to heteroskedasticity           Prob > F        =     0.0000
                                                  R-squared       =     0.9333
                                                  Adj R-squared   =     0.9318
                                                  Within R-sq.    =     0.1841
Number of clusters (COUNTY_num) =        120      Root MSE        =     0.0084

                                       (Std. err. adjusted for 120 clusters in COUNTY_
> num)
------------------------------------------------------------------------------------------
> ----
                          |               Robust
    Ann_FoodInsecurePerc | Coefficient  std. err.      t    P>|t|     [95% conf. inter
> val]
--------------------------+---------------------------------------------------------------
> ----
           WaiverStatus |  -.0037321   .0023053    -1.62   0.108    -.0082969    .000
> 8328
Mnthly_Unemployment_Rate |  -.1471597   .0398861    -3.69   0.000    -.2261382   -.068
> 1812
        Quart_Wkly_Wage |  -.0000383   8.74e-06    -4.38   0.000    -.0000556   -.000
> 0209
  Ann_Perc_Below_Poverty |  -.0479162    .031039    -1.54   0.125    -.1093766    .013
> 5442
       Ann_Perc_NH_White |   .0213586   .0314546     0.68   0.498    -.0409247    .083
> 6419
       Ann_Perc_NH_Black |   .0789288   .1046389     0.75   0.452    -.1282666    .286
> 1242
Ann_Perc_Hispanic_Latino |  -.1928644   .1808262    -1.07   0.288    -.5509183    .165
> 1895
     Ann_Perc_HS_25_Over |   .0551285   .0456706     1.21   0.230    -.0353039     .14
> 5561
   Ann_Perc_Bach_25_Over |  -.1093331   .0461808    -2.37   0.020    -.2007757   -.017
> 8905
        Ann_RuralPopPerc |   .1560582   .0787686     1.98   0.050     .0000886    .312
> 0279
                   _cons |   .0513093   .0714665     0.72   0.474    -.0902016    .192
> 8202
------------------------------------------------------------------------------------------
> ----

Absorbed degrees of freedom:
-----------------------------------------------------+
 Absorbed FE | Categories  - Redundant  = Num. Coefs |
-------------+---------------------------------------|
      COUNTY |       120         120           0    *|
   YearMonth |        72           1          71     |
-----------------------------------------------------+
* = FE nested within cluster; treated as redundant for DoF computation
```

```
. outreg2 using "$base_path/Visualizations/Regression_Table.doc", ///
>     bdec(4) ctitle("Model 3: Demographic Controls") word append
C:\KY-SNAP-ABAWD-Waivers/Visualizations/Regression_Table.doc
dir : seeout

.
. // ------------------------ Step 8: Save Collapsed Data --------------
. save "$base_path/Data_Outputs/Final_Collapsed_Data/Collapsed_Waiver_Status_Data.dta"
> , replace
file C:\KY-SNAP-ABAWD-Waivers/Data_Outputs/Final_Collapsed_Data/Collapsed_Waiver_Statu
> s_Data.dta saved

. di "Dataset successfully processed and saved as Collapsed_Waiver_Status_Data.dta"
Dataset successfully processed and saved as Collapsed_Waiver_Status_Data.dta

.
. // Close log
. log close
      name:  <unnamed>
       log:  C:\KY-SNAP-ABAWD-Waivers/Log_Files/Data_Analysis.log
  log type:  text
 closed on:  24 Aug 2025, 22:54:25
-------------------------------------------------------------------------------
> -------------------------------------------------------------------------------
> -------------------------------------------------------------------------------
```