

SEM Preliminary

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```
#bar graph - median household income comes from ACS 2017 5-year estimates
adj <- data.frame(Race = c("Asian", "Black", "Hispanic", "Nat. Am.", "Other", "White"),
  race_med_inc = c(71865, 32743, 46232, 36017, 42476, 69069),
  ovr_med_inc = rep(65699, 6))

monsanc.short %>%
  select(race_impute, total_ff) %>%
  filter(!is.na(race_impute)) %>%
  mutate(Race = case_when(
    race_impute=="asian"~"Asian",
    race_impute=="black"~"Black",
    race_impute=="hispanic"~"Hispanic",
    race_impute=="nat. am."~"Nat. Am.",
    race_impute=="other"~"Other",
    race_impute=="white"~"White"
  )) %>%
  select(-race_impute) %>%
  left_join(adj, by = "Race") %>%
  mutate(race_adj = (ovr_med_inc/race_med_inc)) %>%
  group_by(Race) %>%
  summarize(
    `Raw_USD` = mean(total_ff, na.rm = T),
    `Adjusted_USD` = mean(total_ff*race_adj, na.rm = T),
    `Raw_sd` = sd(total_ff, na.rm = T),
    `Adjusted_sd` = sd(total_ff*race_adj, na.rm=T)
  ) %>%
  gather(key = "variable", value = "value", -Race) %>%
  separate(variable, into = c("adjusted", "stat"), sep = "_") %>%
  spread(key = "stat", value = "value") %>%
  mutate(Race = factor(Race, levels =
    c("Asian", "Hispanic", "White",
      "Other", "Nat. Am.", "Black")),
    `Income Adjusted` = factor(adjusted, levels = c("Raw", "Adjusted"))) %>%
  select(-adjusted) %>%
  ggplot()+
  geom_bar(aes(x=Race, y=USD, fill=`Income Adjusted`),
    stat="identity",
```

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    position = position_dodge2()+
    geom_text(aes(x=Race, y=USD+25, group=`Income Adjusted`,
                  label = round(USD,0)),
              position = position_dodge2(width = 1))+
    labs(title = "Figure 1: Fine/Fee Orders by Race")+
    scale_fill_manual(values = c("#00AFBB", "#FC4E07"))+
    theme_minimal()

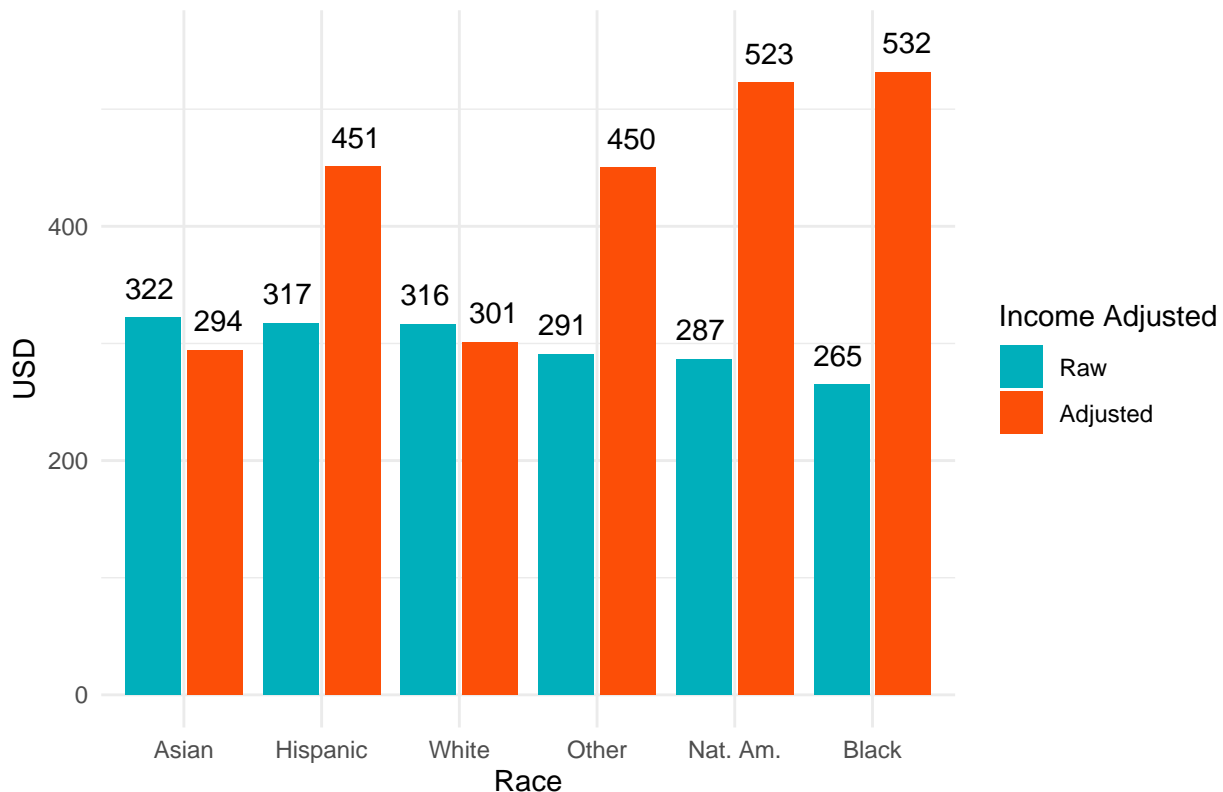
```

```

## Warning: Column `Race` joining character vector and factor, coercing into
## character vector

```

Figure 1: Fine/Fee Orders by Race



```

#confinement bar graph
monsanc.short %>%
  select(race_impute, conf_minus_stayed) %>%
  filter(!is.na(race_impute)) %>%
  mutate(Race = case_when(
    race_impute=="asian"~"Asian",
    race_impute=="black"~"Black",
    race_impute=="hispanic"~"Hispanic",
    race_impute=="nat. am."~"Nat. Am.",
    race_impute=="other"~"Other",
    race_impute=="white"~"White"
  )) %>%
  select(-race_impute) %>%

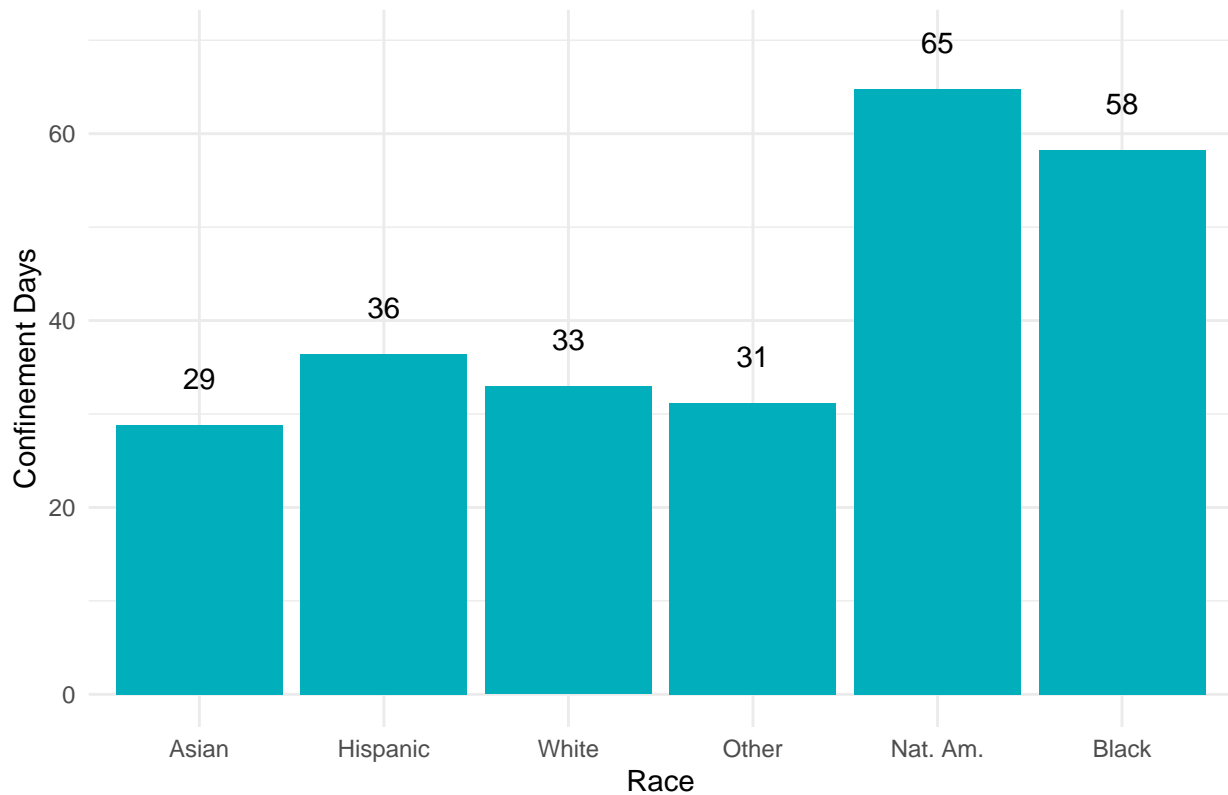
```

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group_by(Race) %>%
  summarize(
    `Confinement Days` = mean(conf_minus_stayed, na.rm = T),
  ) %>%
  gather(key = "variable", value = "value", -Race) %>%
  separate(variable, into = "stat", sep = "_") %>%
  spread(key = "stat", value = "value") %>%
  mutate(Race = factor(Race, levels =
    c("Asian", "Hispanic", "White",
      "Other", "Nat. Am.", "Black")))
  ) %>%
ggplot()+
  geom_bar(aes(x=Race, y=`Confinement Days`),
    fill = "#00AFBB",
    stat="identity",
    position = position_dodge2())+
  geom_text(aes(x=Race, y=`Confinement Days`+5,
    label = round(`Confinement Days`,0)),
    position = position_dodge2(width = 1))+
  labs(title = "Figure 2: Confinement Length by Race")+
  theme_minimal()+
  theme(legend.position = "none")

```

Figure 2: Confinement Length by Race



```

#Multivariate Regression - when all predictors are identical across models
#equivalent to separate OLS, but more efficient and takes into account error covariance

#multivariate fixed effects regression
mv.fe <- lm(cbind(total_ff_log, conf_minus_stayed_log)~black+hispanic+asian+nativeam+other.race+
  male+log(age)+priors+perc_credit+trial_flag+felony+gross.mis+
  drug+alcohol. DUI+hunt.fish+other.offense+
  as.factor(filed_county)+as.factor(sentence_year), data = monsanc.short)
summary(mv.fe)

```

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## Response total_ff_log :
##
## Call:
## lm(formula = total_ff_log ~ black + hispanic + asian + nativeam +
##     other.race + male + log(age) + priors + perc_credit + trial_flag +
##     felony + gross.mis + drug + alcohol. dui + hunt.fish + other.offense +
##     as.factor(filed_county) + as.factor(sentence_year), data = monsanc.short)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -6.483  -0.351   0.249   0.795  90.527
##
## Coefficients:
##
##              Estimate Std. Error t value
## (Intercept)    5.527e+00  2.807e-02 196.922
## black          -2.246e-01  3.624e-03 -61.976
## hispanic        6.722e-02  5.019e-03  13.394
## asian           4.250e-02  7.603e-03   5.589
## nativeam       -3.206e-01  6.612e-03 -48.491
## other.race     -6.021e-02  9.814e-03  -6.135
## male            4.278e-02  2.973e-03  14.391
## log(age)       -4.206e-02  4.043e-03 -10.404
## priors         -1.423e-02  1.579e-04 -90.095
## perc_credit    -2.449e-03  3.149e-05 -77.759
## trial_flagTRUE -5.915e-01  1.376e-01  -4.298
## felony         -5.248e-01  5.898e-03 -88.971
## gross.mis       5.626e-02  4.757e-03  11.828
## drug            3.215e-01  8.814e-03  36.478
## alcohol. dui    5.657e-01  6.732e-03  84.034
## hunt.fish      -5.353e-02  1.482e-02  -3.612
## other.offense   3.238e-01  6.022e-03  53.779
## as.factor(filed_county)Anoka County -7.434e-01  2.408e-02 -30.876
## as.factor(filed_county)Becker County  2.328e-01  2.821e-02   8.252
## as.factor(filed_county)Beltrami County -1.273e-01  2.614e-02  -4.872
## as.factor(filed_county)Benton County  -2.885e-01  3.113e-02  -9.266
## as.factor(filed_county)Big Stone County -1.552e-01  5.979e-02  -2.596
## as.factor(filed_county)Blue Earth County -1.960e-01  2.571e-02  -7.624

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## as.factor(filed_county)Brown County	-1.151e-01	3.244e-02	-3.547
## as.factor(filed_county)Carlton County	-1.075e-01	2.814e-02	-3.821
## as.factor(filed_county)Carver County	-7.573e-02	2.668e-02	-2.838
## as.factor(filed_county)Cass County	-4.207e-01	2.940e-02	-14.309
## as.factor(filed_county)Chippewa County	-7.418e-02	3.868e-02	-1.918
## as.factor(filed_county)Chisago County	-5.197e-01	2.803e-02	-18.539
## as.factor(filed_county)Clay County	-5.875e-02	2.602e-02	-2.258
## as.factor(filed_county)Clearwater County	-1.748e-01	4.566e-02	-3.828
## as.factor(filed_county)Cook County	-4.266e-01	5.337e-02	-7.992
## as.factor(filed_county)Cottonwood County	-1.596e-01	4.149e-02	-3.845
## as.factor(filed_county)Crow Wing County	-2.295e-01	2.616e-02	-8.772
## as.factor(filed_county)Dakota County	-2.305e-01	2.385e-02	-9.663
## as.factor(filed_county)Dodge County	-6.815e-01	3.671e-02	-18.568
## as.factor(filed_county)Douglas County	-4.038e-03	2.978e-02	-0.136
## as.factor(filed_county)Faribault County	-3.519e-02	3.803e-02	-0.925
## as.factor(filed_county)Fillmore County	-2.317e-01	3.652e-02	-6.344
## as.factor(filed_county)Freeborn County	-3.549e-01	2.982e-02	-11.904
## as.factor(filed_county)Goodhue County	-4.993e-01	2.620e-02	-19.059
## as.factor(filed_county)Grant County	-2.004e-01	5.695e-02	-3.519
## as.factor(filed_county)Hennepin County	-8.388e-01	2.352e-02	-35.659
## as.factor(filed_county)Houston County	-4.531e-01	3.459e-02	-13.099
## as.factor(filed_county)Hubbard County	-2.787e-01	3.261e-02	-8.548
## as.factor(filed_county)Isanti County	-4.030e-01	3.039e-02	-13.261
## as.factor(filed_county)Itasca County	-1.100e-01	2.730e-02	-4.028
## as.factor(filed_county)Jackson County	-1.352e-01	4.362e-02	-3.098
## as.factor(filed_county)Kanabec County	-3.109e-01	3.437e-02	-9.044
## as.factor(filed_county)Kandiyohi County	-1.817e-01	2.784e-02	-6.525
## as.factor(filed_county)Kittson County	-5.976e-02	7.729e-02	-0.773
## as.factor(filed_county)Koochiching County	-7.569e-01	3.861e-02	-19.602
## as.factor(filed_county)Lac qui Parle County	-1.990e-01	5.683e-02	-3.503
## as.factor(filed_county)Lake County	-3.334e-01	4.279e-02	-7.792
## as.factor(filed_county)Lake of the Woods County	-4.094e-01	4.931e-02	-8.303
## as.factor(filed_county)LeSueur County	-2.659e-01	3.254e-02	-8.173
## as.factor(filed_county)Lincoln County	-3.354e-02	6.565e-02	-0.511
## as.factor(filed_county)Lyon County	-9.159e-02	3.063e-02	-2.990
## as.factor(filed_county)Mahnomon County	-2.151e-01	3.645e-02	-5.900
## as.factor(filed_county)Marshall County	-1.669e-01	4.859e-02	-3.435
## as.factor(filed_county)Martin County	-3.773e-01	3.263e-02	-11.562
## as.factor(filed_county)McLeod County	-4.836e-01	2.920e-02	-16.563
## as.factor(filed_county)Meeker County	-2.568e-02	3.736e-02	-0.687
## as.factor(filed_county)Mille Lacs County	1.026e-01	2.909e-02	3.528
## as.factor(filed_county)Morrison County	-1.368e-01	3.069e-02	-4.458
## as.factor(filed_county)Mower County	-2.690e-01	2.831e-02	-9.504
## as.factor(filed_county)Murray County	1.051e-02	5.485e-02	0.192
## as.factor(filed_county>Nicollet County	-1.775e-01	3.008e-02	-5.902
## as.factor(filed_county>Nobles County	-1.278e-01	3.254e-02	-3.927
## as.factor(filed_county)Norman County	-1.776e-01	5.203e-02	-3.414
## as.factor(filed_county>Olmsted County	-5.445e-01	2.482e-02	-21.941

## as.factor(filed_county)Otter Tail County	4.918e-02	2.783e-02	1.767
## as.factor(filed_county)Pennington County	-4.271e-01	3.581e-02	-11.928
## as.factor(filed_county)Pine County	-4.560e-01	3.005e-02	-15.174
## as.factor(filed_county)Pipestone County	-6.466e-02	4.923e-02	-1.314
## as.factor(filed_county)Polk County	-1.508e-01	2.895e-02	-5.208
## as.factor(filed_county)Pope County	-2.173e-01	4.239e-02	-5.126
## as.factor(filed_county)Ramsey County	-9.714e-03	2.370e-02	-0.410
## as.factor(filed_county)Red Lake County	-6.585e-01	5.420e-02	-12.150
## as.factor(filed_county)Redwood County	1.569e-02	3.290e-02	0.477
## as.factor(filed_county)Renville County	-7.770e-01	3.402e-02	-22.843
## as.factor(filed_county)Rice County	-2.212e-02	2.736e-02	-0.809
## as.factor(filed_county)Rock County	-1.058e-01	5.295e-02	-1.998
## as.factor(filed_county)Roseau County	-1.235e-01	3.317e-02	-3.722
## as.factor(filed_county)Scott County	-1.299e-01	2.454e-02	-5.291
## as.factor(filed_county)Sherburne County	-3.380e-01	2.640e-02	-12.804
## as.factor(filed_county)Sibley County	-5.327e-01	3.701e-02	-14.395
## as.factor(filed_county)St. Louis County	-2.477e-01	2.425e-02	-10.216
## as.factor(filed_county)Stearns County	-7.322e-02	2.447e-02	-2.992
## as.factor(filed_county)Steele County	-8.944e-02	2.858e-02	-3.130
## as.factor(filed_county)Stevens County	-3.512e-01	4.998e-02	-7.026
## as.factor(filed_county)Swift County	-1.573e-01	4.207e-02	-3.740
## as.factor(filed_county)Todd County	3.122e-02	3.457e-02	0.903
## as.factor(filed_county)Traverse County	-6.652e-01	7.229e-02	-9.203
## as.factor(filed_county)Wabasha County	-5.048e-01	3.218e-02	-15.688
## as.factor(filed_county)Wadena County	-6.256e-02	3.518e-02	-1.778
## as.factor(filed_county)Waseca County	-4.415e-01	3.607e-02	-12.238
## as.factor(filed_county)Washington County	-2.408e-01	2.439e-02	-9.876
## as.factor(filed_county)Watonwan County	-7.252e-02	3.872e-02	-1.873
## as.factor(filed_county)Wilkin County	-2.382e-01	4.323e-02	-5.510
## as.factor(filed_county)Winona County	-3.767e-01	2.773e-02	-13.582
## as.factor(filed_county)Wright County	-6.224e-01	2.582e-02	-24.104
## as.factor(filed_county)Yellow Medicine County	-2.948e-02	3.908e-02	-0.754
## as.factor(sentence_year)2011	4.261e-02	4.601e-03	9.261
## as.factor(sentence_year)2012	2.581e-02	4.555e-03	5.667
## as.factor(sentence_year)2013	9.627e-02	4.856e-03	19.826
## as.factor(sentence_year)2014	1.224e-01	4.660e-03	26.260
## as.factor(sentence_year)2015	1.656e-01	4.754e-03	34.821
## as.factor(sentence_year)2016	2.376e-01	6.414e-03	37.052
## as.factor(sentence_year)2017	4.707e-01	1.139e-02	41.322
## as.factor(sentence_year)2018	5.778e-01	1.768e-02	32.674
##	Pr(> t)		
## (Intercept)	< 2e-16 ***		
## black	< 2e-16 ***		
## hispanic	< 2e-16 ***		
## asian	2.28e-08 ***		
## nativeam	< 2e-16 ***		
## other.race	8.50e-10 ***		
## male	< 2e-16 ***		

```

## log(age) < 2e-16 ***
## priors < 2e-16 ***
## perc_credit < 2e-16 ***
## trial_flagTRUE 1.73e-05 ***
## felony < 2e-16 ***
## gross.mis < 2e-16 ***
## drug < 2e-16 ***
## alcohol.dui < 2e-16 ***
## hunt.fish 0.000304 ***
## other.offense < 2e-16 ***
## as.factor(filed_county)Anoka County < 2e-16 ***
## as.factor(filed_county)Becker County < 2e-16 ***
## as.factor(filed_county)Beltrami County 1.10e-06 ***
## as.factor(filed_county)Benton County < 2e-16 ***
## as.factor(filed_county)Big Stone County 0.009423 **
## as.factor(filed_county)Blue Earth County 2.46e-14 ***
## as.factor(filed_county)Brown County 0.000389 ***
## as.factor(filed_county)Carlton County 0.000133 ***
## as.factor(filed_county)Carver County 0.004538 **
## as.factor(filed_county)Cass County < 2e-16 ***
## as.factor(filed_county)Chippewa County 0.055101 .
## as.factor(filed_county)Chisago County < 2e-16 ***
## as.factor(filed_county)Clay County 0.023946 *
## as.factor(filed_county)Clearwater County 0.000129 ***
## as.factor(filed_county)Cook County 1.33e-15 ***
## as.factor(filed_county)Cottonwood County 0.000120 ***
## as.factor(filed_county)Crow Wing County < 2e-16 ***
## as.factor(filed_county)Dakota County < 2e-16 ***
## as.factor(filed_county)Dodge County < 2e-16 ***
## as.factor(filed_county)Douglas County 0.892145
## as.factor(filed_county)Faribault County 0.354765
## as.factor(filed_county)Fillmore County 2.24e-10 ***
## as.factor(filed_county)Freeborn County < 2e-16 ***
## as.factor(filed_county)Goodhue County < 2e-16 ***
## as.factor(filed_county)Grant County 0.000434 ***
## as.factor(filed_county)Hennepin County < 2e-16 ***
## as.factor(filed_county)Houston County < 2e-16 ***
## as.factor(filed_county)Hubbard County < 2e-16 ***
## as.factor(filed_county)Isanti County < 2e-16 ***
## as.factor(filed_county)Itasca County 5.62e-05 ***
## as.factor(filed_county)Jackson County 0.001945 **
## as.factor(filed_county)Kanabec County < 2e-16 ***
## as.factor(filed_county)Kandiyohi County 6.79e-11 ***
## as.factor(filed_county)Kittson County 0.439399
## as.factor(filed_county)Koochiching County < 2e-16 ***
## as.factor(filed_county)Lac qui Parle County 0.000461 ***
## as.factor(filed_county)Lake County 6.61e-15 ***
## as.factor(filed_county)Lake of the Woods County < 2e-16 ***

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## as.factor(filed_county)LeSueur County	3.01e-16 ***
## as.factor(filed_county)Lincoln County	0.609422
## as.factor(filed_county)Lyon County	0.002785 **
## as.factor(filed_county)Mahnomon County	3.63e-09 ***
## as.factor(filed_county)Marshall County	0.000593 ***
## as.factor(filed_county)Martin County	< 2e-16 ***
## as.factor(filed_county)McLeod County	< 2e-16 ***
## as.factor(filed_county)Meeker County	0.491932
## as.factor(filed_county)Mille Lacs County	0.000419 ***
## as.factor(filed_county)Morrison County	8.28e-06 ***
## as.factor(filed_county)Mower County	< 2e-16 ***
## as.factor(filed_county)Murray County	0.848105
## as.factor(filed_county)Nicollet County	3.58e-09 ***
## as.factor(filed_county)Nobles County	8.60e-05 ***
## as.factor(filed_county)Norman County	0.000640 ***
## as.factor(filed_county)Olmsted County	< 2e-16 ***
## as.factor(filed_county)Otter Tail County	0.077251 .
## as.factor(filed_county)Pennington County	< 2e-16 ***
## as.factor(filed_county)Pine County	< 2e-16 ***
## as.factor(filed_county)Pipestone County	0.188997
## as.factor(filed_county)Polk County	1.91e-07 ***
## as.factor(filed_county)Pope County	2.96e-07 ***
## as.factor(filed_county)Ramsey County	0.681889
## as.factor(filed_county)Red Lake County	< 2e-16 ***
## as.factor(filed_county)Redwood County	0.633340
## as.factor(filed_county)Renville County	< 2e-16 ***
## as.factor(filed_county)Rice County	0.418670
## as.factor(filed_county)Rock County	0.045703 *
## as.factor(filed_county)Roseau County	0.000198 ***
## as.factor(filed_county)Scott County	1.22e-07 ***
## as.factor(filed_county)Sherburne County	< 2e-16 ***
## as.factor(filed_county)Sibley County	< 2e-16 ***
## as.factor(filed_county)St. Louis County	< 2e-16 ***
## as.factor(filed_county)Stearns County	0.002769 **
## as.factor(filed_county)Steele County	0.001749 **
## as.factor(filed_county)Stevens County	2.13e-12 ***
## as.factor(filed_county)Swift County	0.000184 ***
## as.factor(filed_county)Todd County	0.366597
## as.factor(filed_county)Traverse County	< 2e-16 ***
## as.factor(filed_county)Wabasha County	< 2e-16 ***
## as.factor(filed_county)Wadena County	0.075399 .
## as.factor(filed_county)Waseca County	< 2e-16 ***
## as.factor(filed_county)Washington County	< 2e-16 ***
## as.factor(filed_county)Watonwan County	0.061061 .
## as.factor(filed_county)Wilkin County	3.58e-08 ***
## as.factor(filed_county)Winona County	< 2e-16 ***
## as.factor(filed_county)Wright County	< 2e-16 ***
## as.factor(filed_county)Yellow Medicine County	0.450619


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## as.factor(sentence_year)2011          < 2e-16 ***
## as.factor(sentence_year)2012          1.45e-08 ***
## as.factor(sentence_year)2013          < 2e-16 ***
## as.factor(sentence_year)2014          < 2e-16 ***
## as.factor(sentence_year)2015          < 2e-16 ***
## as.factor(sentence_year)2016          < 2e-16 ***
## as.factor(sentence_year)2017          < 2e-16 ***
## as.factor(sentence_year)2018          < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.416 on 1146059 degrees of freedom
## (447941 observations deleted due to missingness)
## Multiple R-squared:  0.1033, Adjusted R-squared:  0.1032
## F-statistic: 1200 on 110 and 1146059 DF,  p-value: < 2.2e-16
##
##
## Response conf_minus_stayed_log :
##
## Call:
## lm(formula = conf_minus_stayed_log ~ black + hispanic + asian +
##     nativeam + other.race + male + log(age) + priors + perc_credit +
##     trial_flag + felony + gross.mis + drug + alcohol. DUI + hunt.fish +
##     other.offense + as.factor(filed_county) + as.factor(sentence_year),
##     data = monsanc.short)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -193.433   -0.429   -0.170    0.126    9.219
##
## Coefficients:
##
##              Estimate Std. Error t value
## (Intercept)  6.788e-01  2.282e-02  29.745
## black        1.224e-01  2.947e-03  41.545
## hispanic     5.953e-02  4.081e-03  14.587
## asian        1.304e-02  6.183e-03   2.110
## nativeam     3.725e-01  5.376e-03  69.281
## other.race    4.764e-02  7.981e-03   5.969
## male         1.556e-01  2.417e-03  64.359
## log(age)     6.313e-02  3.287e-03  19.205
## priors       2.717e-02  1.284e-04 211.595
## perc_credit   5.316e-03  2.561e-05 207.597
## trial_flagTRUE 1.769e+00  1.119e-01  15.803
## felony       3.099e+00  4.796e-03 646.238
## gross.mis     1.691e+00  3.868e-03 437.054
## drug        -9.524e-01  7.167e-03 -132.896
## alcohol. dui -5.198e-01  5.474e-03  -94.961
## hunt.fish    -1.099e+00  1.205e-02  -91.216

```

## other.offense	-8.988e-01	4.897e-03	-183.563
## as.factor(filed_county)Anoka County	-1.211e-01	1.958e-02	-6.187
## as.factor(filed_county)Becker County	2.165e-01	2.294e-02	9.437
## as.factor(filed_county)Beltrami County	1.653e-01	2.125e-02	7.778
## as.factor(filed_county)Benton County	1.292e-01	2.532e-02	5.102
## as.factor(filed_county)Big Stone County	-6.910e-02	4.862e-02	-1.421
## as.factor(filed_county)Blue Earth County	-3.221e-01	2.091e-02	-15.407
## as.factor(filed_county)Brown County	-9.374e-02	2.638e-02	-3.553
## as.factor(filed_county)Carlton County	-5.780e-02	2.288e-02	-2.526
## as.factor(filed_county)Carver County	-2.937e-01	2.170e-02	-13.534
## as.factor(filed_county)Cass County	-3.156e-01	2.391e-02	-13.201
## as.factor(filed_county)Chippewa County	-8.668e-02	3.145e-02	-2.756
## as.factor(filed_county)Chisago County	-2.318e-01	2.279e-02	-10.170
## as.factor(filed_county)Clay County	-4.885e-03	2.116e-02	-0.231
## as.factor(filed_county)Clearwater County	6.941e-02	3.713e-02	1.869
## as.factor(filed_county)Cook County	-3.501e-01	4.340e-02	-8.068
## as.factor(filed_county)Cottonwood County	-1.937e-01	3.374e-02	-5.741
## as.factor(filed_county)Crow Wing County	-3.061e-01	2.127e-02	-14.386
## as.factor(filed_county)Dakota County	-1.809e-01	1.940e-02	-9.325
## as.factor(filed_county)Dodge County	-4.280e-01	2.985e-02	-14.338
## as.factor(filed_county)Douglas County	2.077e-01	2.422e-02	8.575
## as.factor(filed_county)Faribault County	-9.575e-02	3.092e-02	-3.096
## as.factor(filed_county)Fillmore County	-7.943e-02	2.969e-02	-2.675
## as.factor(filed_county)Freeborn County	-1.662e-01	2.425e-02	-6.855
## as.factor(filed_county)Goodhue County	-2.814e-01	2.130e-02	-13.209
## as.factor(filed_county)Grant County	-1.140e-01	4.631e-02	-2.463
## as.factor(filed_county)Hennepin County	-1.034e-01	1.913e-02	-5.405
## as.factor(filed_county)Houston County	-1.926e-01	2.813e-02	-6.849
## as.factor(filed_county)Hubbard County	1.107e-01	2.651e-02	4.177
## as.factor(filed_county)Isanti County	5.871e-02	2.471e-02	2.376
## as.factor(filed_county)Itasca County	-1.002e-01	2.220e-02	-4.512
## as.factor(filed_county)Jackson County	-2.290e-01	3.547e-02	-6.456
## as.factor(filed_county)Kanabec County	3.387e-02	2.795e-02	1.212
## as.factor(filed_county)Kandiyohi County	1.485e-01	2.264e-02	6.560
## as.factor(filed_county)Kittson County	-3.176e-01	6.285e-02	-5.053
## as.factor(filed_county)Koochiching County	-3.352e-01	3.140e-02	-10.677
## as.factor(filed_county)Lac qui Parle County	-7.010e-02	4.621e-02	-1.517
## as.factor(filed_county)Lake County	-8.540e-02	3.480e-02	-2.454
## as.factor(filed_county)Lake of the Woods County	-2.556e-01	4.009e-02	-6.375
## as.factor(filed_county)LeSueur County	-3.473e-01	2.646e-02	-13.128
## as.factor(filed_county)Lincoln County	-1.700e-01	5.338e-02	-3.184
## as.factor(filed_county)Lyon County	-3.938e-02	2.490e-02	-1.581
## as.factor(filed_county)Mahnommen County	-9.177e-02	2.964e-02	-3.096
## as.factor(filed_county)Marshall County	-8.901e-02	3.951e-02	-2.253
## as.factor(filed_county)Martin County	4.814e-02	2.654e-02	1.814
## as.factor(filed_county)McLeod County	-8.542e-03	2.374e-02	-0.360
## as.factor(filed_county)Meeker County	7.279e-02	3.038e-02	2.396
## as.factor(filed_county)Mille Lacs County	1.329e-01	2.366e-02	5.617

## as.factor(filed_county)Morrison County	1.639e-01	2.495e-02	6.568
## as.factor(filed_county)Mower County	-4.747e-01	2.302e-02	-20.622
## as.factor(filed_county)Murray County	-2.734e-01	4.460e-02	-6.130
## as.factor(filed_county)Nicollet County	-2.898e-01	2.446e-02	-11.849
## as.factor(filed_county)Nobles County	-1.780e-01	2.646e-02	-6.726
## as.factor(filed_county)Norman County	-4.240e-02	4.231e-02	-1.002
## as.factor(filed_county)Olmsted County	-2.602e-01	2.018e-02	-12.894
## as.factor(filed_county)Otter Tail County	-7.688e-03	2.263e-02	-0.340
## as.factor(filed_county)Pennington County	-2.674e-02	2.912e-02	-0.918
## as.factor(filed_county)Pine County	7.321e-02	2.443e-02	2.996
## as.factor(filed_county)Pipestone County	-3.590e-01	4.003e-02	-8.969
## as.factor(filed_county)Polk County	4.508e-01	2.354e-02	19.151
## as.factor(filed_county)Pope County	-1.183e-01	3.447e-02	-3.432
## as.factor(filed_county)Ramsey County	2.381e-02	1.927e-02	1.236
## as.factor(filed_county)Red Lake County	-3.536e-01	4.407e-02	-8.023
## as.factor(filed_county)Redwood County	1.345e-01	2.675e-02	5.029
## as.factor(filed_county)Renville County	-6.810e-02	2.766e-02	-2.462
## as.factor(filed_county)Rice County	-2.198e-01	2.225e-02	-9.880
## as.factor(filed_county)Rock County	-2.421e-01	4.305e-02	-5.623
## as.factor(filed_county)Roseau County	-3.004e-01	2.698e-02	-11.136
## as.factor(filed_county)Scott County	-3.556e-01	1.996e-02	-17.820
## as.factor(filed_county)Sherburne County	1.499e-04	2.147e-02	0.007
## as.factor(filed_county)Sibley County	-2.894e-01	3.009e-02	-9.615
## as.factor(filed_county)St. Louis County	-1.736e-01	1.972e-02	-8.805
## as.factor(filed_county)Stearns County	7.914e-02	1.990e-02	3.977
## as.factor(filed_county)Steele County	-9.578e-02	2.324e-02	-4.122
## as.factor(filed_county)Stevens County	-7.388e-03	4.065e-02	-0.182
## as.factor(filed_county)Swift County	9.969e-02	3.421e-02	2.914
## as.factor(filed_county)Todd County	-5.449e-04	2.811e-02	-0.019
## as.factor(filed_county)Traverse County	1.021e-01	5.878e-02	1.737
## as.factor(filed_county)Wabasha County	-4.108e-01	2.617e-02	-15.701
## as.factor(filed_county)Wadena County	3.457e-02	2.861e-02	1.208
## as.factor(filed_county)Waseca County	-3.532e-01	2.933e-02	-12.041
## as.factor(filed_county)Washington County	5.455e-02	1.983e-02	2.751
## as.factor(filed_county)Watonwan County	-2.476e-01	3.148e-02	-7.865
## as.factor(filed_county)Wilkin County	-7.808e-02	3.516e-02	-2.221
## as.factor(filed_county)Winona County	-3.151e-01	2.255e-02	-13.975
## as.factor(filed_county)Wright County	6.668e-02	2.100e-02	3.176
## as.factor(filed_county)Yellow Medicine County	-1.607e-02	3.178e-02	-0.506
## as.factor(sentence_year)2011	-1.235e-02	3.742e-03	-3.301
## as.factor(sentence_year)2012	-1.274e-02	3.704e-03	-3.439
## as.factor(sentence_year)2013	-2.039e-02	3.948e-03	-5.165
## as.factor(sentence_year)2014	-1.500e-02	3.790e-03	-3.957
## as.factor(sentence_year)2015	-2.739e-02	3.866e-03	-7.085
## as.factor(sentence_year)2016	4.753e-02	5.215e-03	9.113
## as.factor(sentence_year)2017	3.229e-02	9.263e-03	3.486
## as.factor(sentence_year)2018	-1.721e-01	1.438e-02	-11.967
##	Pr(> t)		

## (Intercept)	< 2e-16 ***
## black	< 2e-16 ***
## hispanic	< 2e-16 ***
## asian	0.034897 *
## nativeam	< 2e-16 ***
## other.race	2.39e-09 ***
## male	< 2e-16 ***
## log(age)	< 2e-16 ***
## priors	< 2e-16 ***
## perc_credit	< 2e-16 ***
## trial_flagTRUE	< 2e-16 ***
## felony	< 2e-16 ***
## gross.mis	< 2e-16 ***
## drug	< 2e-16 ***
## alcohol.dui	< 2e-16 ***
## hunt.fish	< 2e-16 ***
## other.offense	< 2e-16 ***
## as.factor(filed_county)Anoka County	6.13e-10 ***
## as.factor(filed_county)Becker County	< 2e-16 ***
## as.factor(filed_county)Beltrami County	7.37e-15 ***
## as.factor(filed_county)Benton County	3.36e-07 ***
## as.factor(filed_county)Big Stone County	0.155217
## as.factor(filed_county)Blue Earth County	< 2e-16 ***
## as.factor(filed_county)Brown County	0.000381 ***
## as.factor(filed_county)Carlton County	0.011543 *
## as.factor(filed_county)Carver County	< 2e-16 ***
## as.factor(filed_county)Cass County	< 2e-16 ***
## as.factor(filed_county)Chippewa County	0.005849 **
## as.factor(filed_county)Chisago County	< 2e-16 ***
## as.factor(filed_county)Clay County	0.817392
## as.factor(filed_county)Clearwater County	0.061592 .
## as.factor(filed_county)Cook County	7.16e-16 ***
## as.factor(filed_county)Cottonwood County	9.40e-09 ***
## as.factor(filed_county)Crow Wing County	< 2e-16 ***
## as.factor(filed_county)Dakota County	< 2e-16 ***
## as.factor(filed_county)Dodge County	< 2e-16 ***
## as.factor(filed_county)Douglas County	< 2e-16 ***
## as.factor(filed_county)Faribault County	0.001959 **
## as.factor(filed_county)Fillmore County	0.007471 **
## as.factor(filed_county)Freeborn County	7.15e-12 ***
## as.factor(filed_county)Goodhue County	< 2e-16 ***
## as.factor(filed_county)Grant County	0.013795 *
## as.factor(filed_county)Hennepin County	6.47e-08 ***
## as.factor(filed_county)Houston County	7.46e-12 ***
## as.factor(filed_county)Hubbard County	2.96e-05 ***
## as.factor(filed_county)Isanti County	0.017497 *
## as.factor(filed_county)Itasca County	6.41e-06 ***
## as.factor(filed_county)Jackson County	1.08e-10 ***

```

## as.factor(filed_county)Kanabec County      0.225651
## as.factor(filed_county)Kandiyohi County    5.38e-11 ***
## as.factor(filed_county)Kittson County       4.35e-07 ***
## as.factor(filed_county)Koochiching County   < 2e-16 ***
## as.factor(filed_county)Lac qui Parle County  0.129292
## as.factor(filed_county)Lake County          0.014127 *
## as.factor(filed_county)Lake of the Woods County 1.83e-10 ***
## as.factor(filed_county)LeSueur County       < 2e-16 ***
## as.factor(filed_county)Lincoln County       0.001454 **
## as.factor(filed_county)Lyon County          0.113788
## as.factor(filed_county)Mahnommen County     0.001960 **
## as.factor(filed_county)Marshall County      0.024266 *
## as.factor(filed_county)Martin County        0.069650 .
## as.factor(filed_county)McLeod County        0.718999
## as.factor(filed_county)Meeker County        0.016590 *
## as.factor(filed_county)Mille Lacs County    1.94e-08 ***
## as.factor(filed_county)Morrison County      5.10e-11 ***
## as.factor(filed_county)Mower County         < 2e-16 ***
## as.factor(filed_county)Murray County        8.77e-10 ***
## as.factor(filed_county)Nicollet County      < 2e-16 ***
## as.factor(filed_county)Nobles County        1.75e-11 ***
## as.factor(filed_county)Norman County        0.316276
## as.factor(filed_county)Olmsted County       < 2e-16 ***
## as.factor(filed_county)Otter Tail County    0.734103
## as.factor(filed_county)Pennington County    0.358531
## as.factor(filed_county)Pine County          0.002735 **
## as.factor(filed_county)Pipestone County     < 2e-16 ***
## as.factor(filed_county)Polk County          < 2e-16 ***
## as.factor(filed_county)Pope County          0.000599 ***
## as.factor(filed_county)Ramsey County        0.216579
## as.factor(filed_county)Red Lake County      1.04e-15 ***
## as.factor(filed_county)Redwood County       4.94e-07 ***
## as.factor(filed_county)Renville County      0.013815 *
## as.factor(filed_county)Rice County          < 2e-16 ***
## as.factor(filed_county)Rock County          1.88e-08 ***
## as.factor(filed_county)Roseau County        < 2e-16 ***
## as.factor(filed_county)Scott County         < 2e-16 ***
## as.factor(filed_county)Sherburne County     0.994428
## as.factor(filed_county)Sibley County        < 2e-16 ***
## as.factor(filed_county)St. Louis County     < 2e-16 ***
## as.factor(filed_county)Stearns County       6.97e-05 ***
## as.factor(filed_county)Steele County        3.76e-05 ***
## as.factor(filed_county)Stevens County       0.855761
## as.factor(filed_county)Swift County         0.003568 **
## as.factor(filed_county)Todd County          0.984536
## as.factor(filed_county)Traverse County      0.082389 .
## as.factor(filed_county)Wabasha County       < 2e-16 ***
## as.factor(filed_county)Wadena County       0.226931

```

```
## as.factor(filed_county)Waseca County < 2e-16 ***
## as.factor(filed_county)Washington County 0.005942 **
## as.factor(filed_county)Watonwan County 3.69e-15 ***
## as.factor(filed_county)Wilkin County 0.026351 *
## as.factor(filed_county)Winona County < 2e-16 ***
## as.factor(filed_county)Wright County 0.001494 **
## as.factor(filed_county)Yellow Medicine County 0.613114
## as.factor(sentence_year)2011 0.000964 ***
## as.factor(sentence_year)2012 0.000584 ***
## as.factor(sentence_year)2013 2.40e-07 ***
## as.factor(sentence_year)2014 7.58e-05 ***
## as.factor(sentence_year)2015 1.39e-12 ***
## as.factor(sentence_year)2016 < 2e-16 ***
## as.factor(sentence_year)2017 0.000490 ***
## as.factor(sentence_year)2018 < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.151 on 1146059 degrees of freedom
## (447941 observations deleted due to missingness)
## Multiple R-squared:  0.5026, Adjusted R-squared:  0.5026
## F-statistic: 1.053e+04 on 110 and 1146059 DF, p-value: < 2.2e-16
```

```
#descriptive stats for mv.fe model
```

```
monsanc.short$miss <- seq_len(nrow(monsanc.short)) %in% na.action(mv.fe)
```

```
#descriptive statistics for variables in analysis
```

```
ds <- monsanc.short %>%
  filter(miss==FALSE) %>%
  select(total_ff, conf_minus_stayed,
         white,black,hispanic,asian,nativeam,other.race,
         male,age,priors,trial_flag,
         felony,gross.mis,mis, petty.mis,
         violent,drug,alcohol. DUI,hunt.fish,other.offense,
         cap_ratio) %>%
  gather() %>%
  group_by(key) %>%
  summarize(
    mean = round(mean(value, na.rm=T),2),
    sd = round(sd(value, na.rm=T),2),
    min = min(value, na.rm=T),
    max = max(value, na.rm=T)
  )

print(ds, n = Inf)
```

```
## # A tibble: 22 x 5
```

```
##   key          mean      sd    min      max
```

```
##      <chr>                <dbl> <dbl> <dbl>    <dbl>
## 1 age                    32.0    11.5  15      115
## 2 alcohol.oui            0.16    0.36  0        1
## 3 asian                  0.03    0.18  0        1
## 4 black                  0.23    0.42  0        1
## 5 cap_ratio              0.75    0.15  0.2      1.15
## 6 conf_minus_stayed     40.4    357.   0     44087
## 7 drug                   0.04    0.19  0        1
## 8 felony                 0.08    0.26  0        1
## 9 gross.mis              0.11    0.31  0        1
## 10 hispanic              0.08    0.28  0        1
## 11 hunt.fish             0.01    0.1    0        1
## 12 male                  0.71    0.45  0        1
## 13 mis                   0.82    0.39  0        1
## 14 nativeam              0.05    0.22  0        1
## 15 other.offense         0.74    0.44  0        1
## 16 other.race            0.02    0.14  0        1
## 17 petty.mis             0        0      0        0
## 18 priors                7.52    8.88  0       168
## 19 total_ff              303.    222.   0     1000
## 20 trial_flag            0        0.01  0        1
## 21 violent               0.06    0.24  0        1
## 22 white                 0.580   0.49  0        1
```

#FE instrumental Variables Regression

```
iv.fe <- ivreg(total_ff_log~conf_minus_stayed_log+
               black+hispanic+asian+nativeam+other.race+male+log(age)+
               priors+perc_credit+trial_flag+felony+gross.mis+
               drug+alcohol.oui+hunt.fish+other.offense+
               as.factor(filed_county)+as.factor(sentence_year)|
               cap_ratio+black+hispanic+asian+nativeam+other.race+male+log(age)+
               priors+perc_credit+trial_flag+felony+gross.mis+
               drug+alcohol.oui+hunt.fish+other.offense+
               as.factor(filed_county)+as.factor(sentence_year),
               data = monsanc.short)
```

```
summary(iv.fe, diagnostics=T)
```

```
##
```

```
## Call:
```

```
## ivreg(formula = total_ff_log ~ conf_minus_stayed_log + black +
##       hispanic + asian + nativeam + other.race + male + log(age) +
##       priors + perc_credit + trial_flag + felony + gross.mis +
##       drug + alcohol.oui + hunt.fish + other.offense + as.factor(filed_county) +
##       as.factor(sentence_year) | cap_ratio + black + hispanic +
##       asian + nativeam + other.race + male + log(age) + priors +
##       perc_credit + trial_flag + felony + gross.mis + drug + alcohol.oui +
##       hunt.fish + other.offense + as.factor(filed_county) + as.factor(sentence_year),
```

```

##      data = monsanc.short)
##
## Residuals:
##      Min        1Q      Median        3Q        Max
## -818.7058   -2.0084   -0.5714    0.8760   39.3036
##
## Coefficients:
##                                     Estimate Std. Error t value
## (Intercept)                       8.76310     1.66780   5.254
## conf_minus_stayed_log             -4.75831     2.45083  -1.942
## black                             0.35712     0.30082   1.187
## hispanic                          0.34784     0.14568   2.388
## asian                             0.10247     0.04248   2.412
## nativeam                          1.45378     0.91581   1.587
## other.race                        0.15751     0.11832   1.331
## male                              0.78183     0.38090   2.053
## log(age)                          0.25747     0.15550   1.656
## priors                            0.11612     0.06726   1.726
## perc_credit                       0.02254     0.01286   1.753
## trial_flagTRUE                     7.69182     4.30302   1.788
## felony                           14.23626     7.60583   1.872
## gross.mis                         8.09973     4.14386   1.955
## drug                             -4.23296     2.34714  -1.803
## alcohol.dui                      -1.90942     1.27568  -1.497
## hunt.fish                        -5.30181     2.70438  -1.960
## other.offense                     -3.95811     2.20695  -1.793
## as.factor(filed_county)Anoka County -1.31570     0.30872  -4.262
## as.factor(filed_county)Becker County  1.26945     0.54440   2.332
## as.factor(filed_county)Beltrami County  0.66449     0.41982   1.583
## as.factor(filed_county)Benton County  0.32752     0.33927   0.965
## as.factor(filed_county)Big Stone County -0.49757     0.28915  -1.721
## as.factor(filed_county)Blue Earth County -1.72461     0.79315  -2.174
## as.factor(filed_county)Brown County   -0.55672     0.25879  -2.151
## as.factor(filed_county)Carlton County  -0.37883     0.17718  -2.138
## as.factor(filed_county)Carver County  -1.47029     0.72464  -2.029
## as.factor(filed_county)Cass County    -1.93138     0.78887  -2.448
## as.factor(filed_county)Chippewa County -0.48187     0.25708  -1.874
## as.factor(filed_county)Chisago County -1.62590     0.57974  -2.805
## as.factor(filed_county)Clay County    -0.07851     0.10028  -0.783
## as.factor(filed_county)Clearwater County  0.14343     0.23810   0.602
## as.factor(filed_county)Cook County    -1.65930     0.70973  -2.338
## as.factor(filed_county)Cottonwood County -1.07505     0.49875  -2.155
## as.factor(filed_county)Crow Wing County -1.68575     0.75663  -2.228
## as.factor(filed_county)Dakota County   -1.08848     0.45114  -2.413
## as.factor(filed_county)Dodge County   -2.70936     1.05301  -2.573
## as.factor(filed_county)Douglas County   0.99950     0.52955   1.887
## as.factor(filed_county)Faribault County -0.48457     0.27334  -1.773
## as.factor(filed_county)Fillmore County -0.60552     0.23738  -2.551

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## as.factor(filed_county)Freeborn County	-1.15143	0.42525	-2.708
## as.factor(filed_county)Goodhue County	-1.83276	0.69352	-2.643
## as.factor(filed_county)Hennepin County	-1.33085	0.26701	-4.984
## as.factor(filed_county)Houston County	-1.38045	0.49621	-2.782
## as.factor(filed_county)Hubbard County	0.26001	0.30294	0.858
## as.factor(filed_county)Isanti County	-0.11793	0.18806	-0.627
## as.factor(filed_county)Itasca County	-0.58356	0.26563	-2.197
## as.factor(filed_county)Jackson County	-1.21509	0.58215	-2.087
## as.factor(filed_county)Kanabec County	-0.14253	0.15691	-0.908
## as.factor(filed_county)Kandiyohi County	0.52420	0.37869	1.384
## as.factor(filed_county)Kittson County	-1.56325	0.82819	-1.888
## as.factor(filed_county)Koochiching County	-2.35711	0.83710	-2.816
## as.factor(filed_county)Lac qui Parle County	-0.51586	0.27640	-1.866
## as.factor(filed_county)Lake County	-0.73472	0.26320	-2.791
## as.factor(filed_county)Lake of the Woods County	-1.62464	0.65331	-2.487
## as.factor(filed_county)Lincoln County	-0.83744	0.48370	-1.731
## as.factor(filed_county)Lyon County	-0.27702	0.15121	-1.832
## as.factor(filed_county)Marshall County	-0.58534	0.28419	-2.060
## as.factor(filed_county)Martin County	-0.14972	0.17193	-0.871
## as.factor(filed_county)McLeod County	-0.52428	0.11383	-4.606
## as.factor(filed_county)Meeker County	0.32147	0.22861	1.406
## as.factor(filed_county)Mille Lacs County	0.73511	0.34416	2.136
## as.factor(filed_county>Morrison County	0.64724	0.42117	1.537
## as.factor(filed_county>Mower County	-2.52621	1.16689	-2.165
## as.factor(filed_county>Murray County	-1.28612	0.70054	-1.836
## as.factor(filed_county>Nicollet County	-1.55450	0.71820	-2.164
## as.factor(filed_county>Nobles County	-0.98133	0.45678	-2.148
## as.factor(filed_county)Norman County	-0.36875	0.22264	-1.656
## as.factor(filed_county>Olmsted County	-1.77641	0.64110	-2.771
## as.factor(filed_county>Otter Tail County	0.01793	0.10793	0.166
## as.factor(filed_county>Pennington County	-0.55748	0.15266	-3.652
## as.factor(filed_county>Pine County	-0.10626	0.21393	-0.497
## as.factor(filed_county>Pipestone County	-1.77316	0.90033	-1.969
## as.factor(filed_county>Polk County	1.99680	1.11137	1.797
## as.factor(filed_county>Pope County	-0.77697	0.33028	-2.352
## as.factor(filed_county>Ramsey County	0.12044	0.11275	1.068
## as.factor(filed_county>Red Lake County	-2.32714	0.88395	-2.633
## as.factor(filed_county>Redwood County	0.66526	0.35671	1.865
## as.factor(filed_county>Renville County	-1.10558	0.21447	-5.155
## as.factor(filed_county>Rice County	-1.06391	0.54671	-1.946
## as.factor(filed_county>Rock County	-1.24525	0.62525	-1.992
## as.factor(filed_county>Roseau County	-1.54912	0.74461	-2.080
## as.factor(filed_county>Scott County	-1.81853	0.87445	-2.080
## as.factor(filed_county>Sherburne County	-0.32750	0.10141	-3.229
## as.factor(filed_county>Sibley County	-1.90114	0.71922	-2.643
## as.factor(filed_county>St. Louis County	-1.06947	0.43411	-2.464
## as.factor(filed_county>Stearns County	0.30697	0.21743	1.412
## as.factor(filed_county>Steele County	-0.54153	0.25678	-2.109

## as.factor(filed_county)Stevens County	-0.38044	0.19207	-1.981
## as.factor(filed_county)Swift County	0.32641	0.29674	1.100
## as.factor(filed_county)Todd County	0.03364	0.13250	0.254
## as.factor(filed_county)Traverse County	-0.18590	0.36827	-0.505
## as.factor(filed_county)Wabasha County	-2.45243	1.01000	-2.428
## as.factor(filed_county)Wadena County	0.10981	0.16188	0.678
## as.factor(filed_county)Waseca County	-2.11963	0.87475	-2.423
## as.factor(filed_county)Washington County	0.01913	0.16293	0.117
## as.factor(filed_county)Watsonwan County	-1.25005	0.62315	-2.006
## as.factor(filed_county)Wilkin County	-0.60589	0.25098	-2.414
## as.factor(filed_county)Winona County	-1.88432	0.78426	-2.403
## as.factor(filed_county)Wright County	-0.29867	0.19366	-1.542
## as.factor(filed_county)Yellow Medicine County	-0.09137	0.15363	-0.595
## as.factor(sentence_year)2011	-0.02021	0.03636	-0.556
## as.factor(sentence_year)2012	-0.04208	0.03865	-1.089
## as.factor(sentence_year)2013	-0.01407	0.05949	-0.236
## as.factor(sentence_year)2014	0.04105	0.04545	0.903
## as.factor(sentence_year)2015	0.02546	0.07428	0.343
## as.factor(sentence_year)2016	0.45387	0.11390	3.985
## as.factor(sentence_year)2017	0.60242	0.08002	7.528
##	Pr(> t)		
## (Intercept)	1.49e-07	***	
## conf_minus_stayed_log	0.05220	.	
## black	0.23517		
## hispanic	0.01695	*	
## asian	0.01585	*	
## nativeam	0.11242		
## other.race	0.18311		
## male	0.04011	*	
## log(age)	0.09777	.	
## priors	0.08428	.	
## perc_credit	0.07960	.	
## trial_flagTRUE	0.07385	.	
## felony	0.06124	.	
## gross.mis	0.05063	.	
## drug	0.07132	.	
## alcohol.dui	0.13445		
## hunt.fish	0.04994	*	
## other.offense	0.07290	.	
## as.factor(filed_county)Anoka County	2.03e-05	***	
## as.factor(filed_county)Becker County	0.01971	*	
## as.factor(filed_county)Beltrami County	0.11347		
## as.factor(filed_county)Benton County	0.33437		
## as.factor(filed_county)Big Stone County	0.08529	.	
## as.factor(filed_county)Blue Earth County	0.02968	*	
## as.factor(filed_county)Brown County	0.03145	*	
## as.factor(filed_county)Carlton County	0.03251	*	
## as.factor(filed_county)Carver County	0.04246	*	

## as.factor(filed_county)Cass County	0.01435 *
## as.factor(filed_county)Chippewa County	0.06087 .
## as.factor(filed_county)Chisago County	0.00504 **
## as.factor(filed_county)Clay County	0.43369
## as.factor(filed_county)Clearwater County	0.54692
## as.factor(filed_county)Cook County	0.01939 *
## as.factor(filed_county)Cottonwood County	0.03112 *
## as.factor(filed_county)Crow Wing County	0.02588 *
## as.factor(filed_county)Dakota County	0.01583 *
## as.factor(filed_county)Dodge County	0.01008 *
## as.factor(filed_county)Douglas County	0.05910 .
## as.factor(filed_county)Faribault County	0.07626 .
## as.factor(filed_county)Fillmore County	0.01074 *
## as.factor(filed_county)Freeborn County	0.00678 **
## as.factor(filed_county)Goodhue County	0.00823 **
## as.factor(filed_county)Hennepin County	6.22e-07 ***
## as.factor(filed_county)Houston County	0.00540 **
## as.factor(filed_county)Hubbard County	0.39073
## as.factor(filed_county)Isanti County	0.53059
## as.factor(filed_county)Itasca County	0.02803 *
## as.factor(filed_county)Jackson County	0.03687 *
## as.factor(filed_county)Kanabec County	0.36369
## as.factor(filed_county)Kandiyohi County	0.16628
## as.factor(filed_county)Kittson County	0.05909 .
## as.factor(filed_county)Koochiching County	0.00487 **
## as.factor(filed_county)Lac qui Parle County	0.06199 .
## as.factor(filed_county)Lake County	0.00525 **
## as.factor(filed_county)Lake of the Woods County	0.01289 *
## as.factor(filed_county)Lincoln County	0.08339 .
## as.factor(filed_county)Lyon County	0.06694 .
## as.factor(filed_county)Marshall County	0.03943 *
## as.factor(filed_county)Martin County	0.38385
## as.factor(filed_county)McLeod County	4.11e-06 ***
## as.factor(filed_county)Meeker County	0.15967
## as.factor(filed_county)Mille Lacs County	0.03268 *
## as.factor(filed_county)Morrison County	0.12436
## as.factor(filed_county)Mower County	0.03039 *
## as.factor(filed_county)Murray County	0.06637 .
## as.factor(filed_county>Nicollet County	0.03043 *
## as.factor(filed_county>Nobles County	0.03169 *
## as.factor(filed_county)Norman County	0.09766 .
## as.factor(filed_county>Olmsted County	0.00559 **
## as.factor(filed_county>Otter Tail County	0.86806
## as.factor(filed_county)Pennington County	0.00026 ***
## as.factor(filed_county)Pine County	0.61940
## as.factor(filed_county)Pipestone County	0.04890 *
## as.factor(filed_county)Polk County	0.07238 .
## as.factor(filed_county)Pope County	0.01865 *

```

## as.factor(filed_county)Ramsey County          0.28544
## as.factor(filed_county)Red Lake County         0.00847 **
## as.factor(filed_county)Redwood County          0.06218 .
## as.factor(filed_county)Renville County         2.54e-07 ***
## as.factor(filed_county)Rice County             0.05165 .
## as.factor(filed_county)Rock County             0.04641 *
## as.factor(filed_county)Roseau County           0.03749 *
## as.factor(filed_county)Scott County            0.03756 *
## as.factor(filed_county)Sherburne County        0.00124 **
## as.factor(filed_county)Sibley County           0.00821 **
## as.factor(filed_county)St. Louis County         0.01375 *
## as.factor(filed_county)Stearns County          0.15801
## as.factor(filed_county)Steele County           0.03495 *
## as.factor(filed_county)Stevens County          0.04762 *
## as.factor(filed_county)Swift County            0.27133
## as.factor(filed_county)Todd County             0.79959
## as.factor(filed_county)Traverse County         0.61371
## as.factor(filed_county)Wabasha County          0.01518 *
## as.factor(filed_county)Wadena County           0.49756
## as.factor(filed_county)Waseca County           0.01539 *
## as.factor(filed_county)Washington County       0.90652
## as.factor(filed_county)Watsonwan County        0.04485 *
## as.factor(filed_county)Wilkin County           0.01577 *
## as.factor(filed_county)Winona County           0.01628 *
## as.factor(filed_county)Wright County           0.12301
## as.factor(filed_county)Yellow Medicine County  0.55203
## as.factor(sentence_year)2011                   0.57823
## as.factor(sentence_year)2012                   0.27633
## as.factor(sentence_year)2013                   0.81307
## as.factor(sentence_year)2014                   0.36639
## as.factor(sentence_year)2015                   0.73182
## as.factor(sentence_year)2016                   6.75e-05 ***
## as.factor(sentence_year)2017                   5.14e-14 ***
##
## Diagnostic tests:
##
##              df1      df2 statistic  p-value
## Weak instruments      1 1131759      3.696  0.0545 .
## Wu-Hausman           1 1131758     51.860 5.96e-13 ***
## Sargan                0      NA        NA      NA
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 5.421 on 1131759 degrees of freedom
## Multiple R-Squared:  -12.09, Adjusted R-squared:  -12.09
## Wald test: 84.08 on 107 and 1131759 DF, p-value: < 2.2e-16

monsanc.short$missiv <- seq_len(nrow(monsanc.short)) %in% na.action(iv.fe)

```

```

#FE OLS
fe.ols <- lm(total_ff_log~conf_minus_stayed_log+
             black+hispanic+asian+nativeam+other.race+male+log(age)+
             priors+perc_credit+trial_flag+felony+gross.mis+
             drug+alcohol.dui+hunt.fish+other.offense+
             as.factor(filed_county)+as.factor(sentence_year),
             data = monsanc.short[monsanc.short$missiv==F,])

summary(fe.ols)

##
## Call:
## lm(formula = total_ff_log ~ conf_minus_stayed_log + black + hispanic +
##     asian + nativeam + other.race + male + log(age) + priors +
##     perc_credit + trial_flag + felony + gross.mis + drug + alcohol.dui +
##     hunt.fish + other.offense + as.factor(filed_county) + as.factor(sentence_year),
##     data = monsanc.short[monsanc.short$missiv == F, ])
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -6.516  -0.346   0.245   0.790  50.244
##
## Coefficients:
##
##              Estimate Std. Error t value
## (Intercept)      5.672e+00  2.781e-02  203.953
## conf_minus_stayed_log -2.060e-01  1.142e-03 -180.329
## black            -2.010e-01  3.600e-03  -55.851
## hispanic          7.964e-02  4.986e-03   15.971
## asian             4.520e-02  7.536e-03    5.997
## nativeam         -2.466e-01  6.613e-03  -37.298
## other.race        -5.074e-02  9.751e-03   -5.204
## male              7.465e-02  2.961e-03   25.213
## log(age)         -2.991e-02  4.016e-03   -7.449
## priors           -8.809e-03  1.604e-04  -54.929
## perc_credit      -1.342e-03  3.173e-05  -42.281
## trial_flagTRUE   -2.395e-01  1.373e-01   -1.745
## felony            1.089e-01  6.854e-03   15.885
## gross.mis         4.028e-01  5.103e-03   78.931
## drug              1.263e-01  8.824e-03   14.312
## alcohol.dui       4.596e-01  6.715e-03   68.439
## hunt.fish        -2.797e-01  1.483e-02  -18.856
## other.offense     1.410e-01  6.071e-03   23.218
## as.factor(filed_county)Anoka County -7.685e-01  2.382e-02  -32.265
## as.factor(filed_county)Becker County  2.784e-01  2.790e-02    9.980
## as.factor(filed_county)Beltrami County -9.276e-02  2.585e-02   -3.588
## as.factor(filed_county)Benton County -2.624e-01  3.078e-02   -8.526
## as.factor(filed_county)Big Stone County -1.708e-01  5.918e-02   -2.885

```

## as.factor(filed_county)Blue Earth County	-2.628e-01	2.543e-02	-10.334
## as.factor(filed_county)Brown County	-1.352e-01	3.207e-02	-4.214
## as.factor(filed_county)Carlton County	-1.179e-01	2.785e-02	-4.233
## as.factor(filed_county)Carver County	-1.378e-01	2.639e-02	-5.221
## as.factor(filed_county)Cass County	-4.812e-01	2.912e-02	-16.525
## as.factor(filed_county)Chippewa County	-9.203e-02	3.829e-02	-2.403
## as.factor(filed_county)Chisago County	-5.677e-01	2.774e-02	-20.465
## as.factor(filed_county)Clay County	-5.969e-02	2.573e-02	-2.320
## as.factor(filed_county)Clearwater County	-1.559e-01	4.521e-02	-3.447
## as.factor(filed_county)Cook County	-4.466e-01	7.180e-02	-6.221
## as.factor(filed_county)Cottonwood County	-1.970e-01	4.104e-02	-4.801
## as.factor(filed_county)Crow Wing County	-2.928e-01	2.588e-02	-11.311
## as.factor(filed_county)Dakota County	-2.679e-01	2.360e-02	-11.354
## as.factor(filed_county)Dodge County	-7.710e-01	3.631e-02	-21.233
## as.factor(filed_county)Douglas County	3.904e-02	2.947e-02	1.325
## as.factor(filed_county)Faribault County	-5.510e-02	3.760e-02	-1.465
## as.factor(filed_county)Fillmore County	-2.494e-01	3.609e-02	-6.909
## as.factor(filed_county)Freeborn County	-3.906e-01	2.948e-02	-13.249
## as.factor(filed_county)Goodhue County	-5.582e-01	2.592e-02	-21.535
## as.factor(filed_county)Hennepin County	-8.641e-01	2.327e-02	-37.133
## as.factor(filed_county)Houston County	-4.923e-01	3.421e-02	-14.391
## as.factor(filed_county)Hubbard County	-2.524e-01	3.229e-02	-7.815
## as.factor(filed_county)Isanti County	-3.920e-01	3.007e-02	-13.038
## as.factor(filed_county)Itasca County	-1.301e-01	2.701e-02	-4.818
## as.factor(filed_county)Jackson County	-1.793e-01	4.313e-02	-4.158
## as.factor(filed_county)Kanabec County	-3.009e-01	3.398e-02	-8.854
## as.factor(filed_county)Kandiyohi County	-1.506e-01	2.756e-02	-5.466
## as.factor(filed_county)Kittson County	-1.266e-01	7.636e-02	-1.657
## as.factor(filed_county)Koochiching County	-8.268e-01	3.821e-02	-21.639
## as.factor(filed_county)Lac qui Parle County	-2.006e-01	5.627e-02	-3.566
## as.factor(filed_county)Lake County	-3.523e-01	4.229e-02	-8.330
## as.factor(filed_county)Lake of the Woods County	-4.631e-01	4.876e-02	-9.496
## as.factor(filed_county)Lincoln County	-6.994e-02	6.486e-02	-1.078
## as.factor(filed_county)Lyon County	-1.002e-01	3.030e-02	-3.306
## as.factor(filed_county)Marshall County	-1.865e-01	4.801e-02	-3.884
## as.factor(filed_county)Martin County	-3.688e-01	3.227e-02	-11.428
## as.factor(filed_county)McLeod County	-4.860e-01	2.888e-02	-16.831
## as.factor(filed_county)Meeker County	-9.308e-03	3.698e-02	-0.252
## as.factor(filed_county)Mille Lacs County	1.304e-01	2.877e-02	4.531
## as.factor(filed_county)Morrison County	-1.039e-01	3.034e-02	-3.426
## as.factor(filed_county)Mower County	-3.682e-01	2.799e-02	-13.151
## as.factor(filed_county)Murray County	-4.504e-02	5.430e-02	-0.829
## as.factor(filed_county>Nicollet County	-2.378e-01	2.974e-02	-7.994
## as.factor(filed_county>Nobles County	-1.651e-01	3.219e-02	-5.131
## as.factor(filed_county)Norman County	-1.878e-01	5.163e-02	-3.637
## as.factor(filed_county>Olmsted County	-5.988e-01	2.455e-02	-24.394
## as.factor(filed_county>Otter Tail County	4.759e-02	2.753e-02	1.729
## as.factor(filed_county)Pennington County	-4.342e-01	3.546e-02	-12.245

## as.factor(filed_county)Pine County	-4.410e-01	2.973e-02	-14.835
## as.factor(filed_county)Pipestone County	-1.381e-01	4.877e-02	-2.832
## as.factor(filed_county)Polk County	-5.718e-02	2.865e-02	-1.996
## as.factor(filed_county)Pope County	-2.431e-01	4.197e-02	-5.793
## as.factor(filed_county)Ramsey County	-3.474e-03	2.345e-02	-0.148
## as.factor(filed_county)Red Lake County	-7.315e-01	5.371e-02	-13.618
## as.factor(filed_county)Redwood County	4.559e-02	3.257e-02	1.400
## as.factor(filed_county)Renville County	-7.895e-01	3.367e-02	-23.448
## as.factor(filed_county)Rice County	-6.731e-02	2.707e-02	-2.487
## as.factor(filed_county)Rock County	-1.470e-01	5.243e-02	-2.803
## as.factor(filed_county)Roseau County	-1.864e-01	3.281e-02	-5.680
## as.factor(filed_county)Scott County	-2.037e-01	2.428e-02	-8.390
## as.factor(filed_county)Sherburne County	-3.371e-01	2.612e-02	-12.905
## as.factor(filed_county)Sibley County	-5.915e-01	3.659e-02	-16.166
## as.factor(filed_county)St. Louis County	-2.819e-01	2.399e-02	-11.749
## as.factor(filed_county)Stearns County	-5.735e-02	2.420e-02	-2.370
## as.factor(filed_county)Steele County	-1.102e-01	2.825e-02	-3.899
## as.factor(filed_county)Stevens County	-3.544e-01	4.941e-02	-7.172
## as.factor(filed_county)Swift County	-1.361e-01	4.164e-02	-3.268
## as.factor(filed_county)Todd County	3.001e-02	3.417e-02	0.878
## as.factor(filed_county)Traverse County	-6.351e-01	7.164e-02	-8.865
## as.factor(filed_county)Wabasha County	-5.904e-01	3.181e-02	-18.559
## as.factor(filed_county)Wadena County	-5.647e-02	3.479e-02	-1.623
## as.factor(filed_county)Waseca County	-5.152e-01	3.565e-02	-14.451
## as.factor(filed_county)Washington County	-2.287e-01	2.413e-02	-9.478
## as.factor(filed_county)Watsonwan County	-1.259e-01	3.827e-02	-3.289
## as.factor(filed_county)Wilkin County	-2.560e-01	4.277e-02	-5.984
## as.factor(filed_county)Winona County	-4.411e-01	2.744e-02	-16.074
## as.factor(filed_county)Wright County	-6.078e-01	2.555e-02	-23.790
## as.factor(filed_county)Yellow Medicine County	-2.972e-02	3.869e-02	-0.768
## as.factor(sentence_year)2011	3.879e-02	4.563e-03	8.501
## as.factor(sentence_year)2012	2.193e-02	4.516e-03	4.857
## as.factor(sentence_year)2013	9.087e-02	4.812e-03	18.883
## as.factor(sentence_year)2014	1.186e-01	4.620e-03	25.679
## as.factor(sentence_year)2015	1.592e-01	4.715e-03	33.765
## as.factor(sentence_year)2016	2.473e-01	6.358e-03	38.899
## as.factor(sentence_year)2017	4.779e-01	1.128e-02	42.385
##	Pr(> t)		
## (Intercept)	< 2e-16 ***		
## conf_minus_stayed_log	< 2e-16 ***		
## black	< 2e-16 ***		
## hispanic	< 2e-16 ***		
## asian	2.01e-09 ***		
## nativeam	< 2e-16 ***		
## other.race	1.95e-07 ***		
## male	< 2e-16 ***		
## log(age)	9.42e-14 ***		
## priors	< 2e-16 ***		

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## perc_credit < 2e-16 ***
## trial_flagTRUE 0.081041 .
## felony < 2e-16 ***
## gross.mis < 2e-16 ***
## drug < 2e-16 ***
## alcohol.dui < 2e-16 ***
## hunt.fish < 2e-16 ***
## other.offense < 2e-16 ***
## as.factor(filed_county)Anoka County < 2e-16 ***
## as.factor(filed_county)Becker County < 2e-16 ***
## as.factor(filed_county)Beltrami County 0.000333 ***
## as.factor(filed_county)Benton County < 2e-16 ***
## as.factor(filed_county)Big Stone County 0.003912 **
## as.factor(filed_county)Blue Earth County < 2e-16 ***
## as.factor(filed_county)Brown County 2.51e-05 ***
## as.factor(filed_county)Carlton County 2.30e-05 ***
## as.factor(filed_county)Carver County 1.78e-07 ***
## as.factor(filed_county)Cass County < 2e-16 ***
## as.factor(filed_county)Chippewa County 0.016244 *
## as.factor(filed_county)Chisago County < 2e-16 ***
## as.factor(filed_county)Clay County 0.020362 *
## as.factor(filed_county)Clearwater County 0.000566 ***
## as.factor(filed_county)Cook County 4.95e-10 ***
## as.factor(filed_county)Cottonwood County 1.58e-06 ***
## as.factor(filed_county)Crow Wing County < 2e-16 ***
## as.factor(filed_county)Dakota County < 2e-16 ***
## as.factor(filed_county)Dodge County < 2e-16 ***
## as.factor(filed_county)Douglas County 0.185194
## as.factor(filed_county)Faribault County 0.142811
## as.factor(filed_county)Fillmore County 4.88e-12 ***
## as.factor(filed_county)Freeborn County < 2e-16 ***
## as.factor(filed_county)Goodhue County < 2e-16 ***
## as.factor(filed_county)Hennepin County < 2e-16 ***
## as.factor(filed_county)Houston County < 2e-16 ***
## as.factor(filed_county)Hubbard County 5.49e-15 ***
## as.factor(filed_county)Isanti County < 2e-16 ***
## as.factor(filed_county)Itasca County 1.45e-06 ***
## as.factor(filed_county)Jackson County 3.21e-05 ***
## as.factor(filed_county)Kanabec County < 2e-16 ***
## as.factor(filed_county)Kandiyohi County 4.60e-08 ***
## as.factor(filed_county)Kittson County 0.097433 .
## as.factor(filed_county)Koochiching County < 2e-16 ***
## as.factor(filed_county)Lac qui Parle County 0.000363 ***
## as.factor(filed_county)Lake County < 2e-16 ***
## as.factor(filed_county)Lake of the Woods County < 2e-16 ***
## as.factor(filed_county)Lincoln County 0.280902
## as.factor(filed_county)Lyon County 0.000947 ***
## as.factor(filed_county)Marshall County 0.000103 ***

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## as.factor(filed_county)Martin County          < 2e-16 ***
## as.factor(filed_county)McLeod County          < 2e-16 ***
## as.factor(filed_county)Meeker County          0.801250
## as.factor(filed_county)Mille Lacs County       5.87e-06 ***
## as.factor(filed_county)Morrison County        0.000613 ***
## as.factor(filed_county)Mower County           < 2e-16 ***
## as.factor(filed_county)Murray County          0.406865
## as.factor(filed_county)Nicollet County        1.30e-15 ***
## as.factor(filed_county)Nobles County          2.88e-07 ***
## as.factor(filed_county)Norman County          0.000276 ***
## as.factor(filed_county)Olmsted County         < 2e-16 ***
## as.factor(filed_county)Otter Tail County       0.083878 .
## as.factor(filed_county)Pennington County      < 2e-16 ***
## as.factor(filed_county)Pine County            < 2e-16 ***
## as.factor(filed_county)Pipestone County       0.004622 **
## as.factor(filed_county)Polk County            0.045961 *
## as.factor(filed_county)Pope County            6.93e-09 ***
## as.factor(filed_county)Ramsey County          0.882218
## as.factor(filed_county)Red Lake County        < 2e-16 ***
## as.factor(filed_county)Redwood County        0.161563
## as.factor(filed_county)Renville County       < 2e-16 ***
## as.factor(filed_county)Rice County            0.012898 *
## as.factor(filed_county)Rock County            0.005061 **
## as.factor(filed_county)Roseau County          1.35e-08 ***
## as.factor(filed_county)Scott County           < 2e-16 ***
## as.factor(filed_county)Sherburne County       < 2e-16 ***
## as.factor(filed_county)Sibley County          < 2e-16 ***
## as.factor(filed_county)St. Louis County       < 2e-16 ***
## as.factor(filed_county)Stearns County         0.017801 *
## as.factor(filed_county)Steele County          9.67e-05 ***
## as.factor(filed_county)Stevens County        7.39e-13 ***
## as.factor(filed_county)Swift County           0.001082 **
## as.factor(filed_county)Todd County            0.379883
## as.factor(filed_county)Traverse County        < 2e-16 ***
## as.factor(filed_county)Wabasha County         < 2e-16 ***
## as.factor(filed_county)Wadena County          0.104530
## as.factor(filed_county)Waseca County          < 2e-16 ***
## as.factor(filed_county)Washington County      < 2e-16 ***
## as.factor(filed_county)Watonwan County        0.001006 **
## as.factor(filed_county)Wilkin County          2.17e-09 ***
## as.factor(filed_county)Winona County          < 2e-16 ***
## as.factor(filed_county)Wright County          < 2e-16 ***
## as.factor(filed_county)Yellow Medicine County 0.442349
## as.factor(sentence_year)2011                 < 2e-16 ***
## as.factor(sentence_year)2012                 1.19e-06 ***
## as.factor(sentence_year)2013                 < 2e-16 ***
## as.factor(sentence_year)2014                 < 2e-16 ***
## as.factor(sentence_year)2015                 < 2e-16 ***

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## as.factor(sentence_year)2016 < 2e-16 ***
## as.factor(sentence_year)2017 < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 1.398 on 1131759 degrees of freedom
## Multiple R-squared:  0.129, Adjusted R-squared:  0.129
## F-statistic: 1567 on 107 and 1131759 DF, p-value: < 2.2e-16

#IV F test
# First Stage
first_stage <- lm(conf_minus_stayed_log~cap_ratio+
                  black+hispanic+asian+nativeam+other.race+male+log(age)+
                  priors+perc_credit+trial_flag+felony+gross.mis+
                  drug+alcohol. DUI+hunt.fish+other.offense+
                  as.factor(filed_county)+as.factor(sentence_year),
                  data=monsanc.short[monsanc.short$missiv==F,])

waldtest(first_stage, .~-cap_ratio)

## Wald test
##
## Model 1: conf_minus_stayed_log ~ cap_ratio + black + hispanic + asian +
##      nativeam + other.race + male + log(age) + priors + perc_credit +
##      trial_flag + felony + gross.mis + drug + alcohol. dui + hunt.fish +
##      other.offense + as.factor(filed_county) + as.factor(sentence_year)
## Model 2: conf_minus_stayed_log ~ black + hispanic + asian + nativeam +
##      other.race + male + log(age) + priors + perc_credit + trial_flag +
##      felony + gross.mis + drug + alcohol. dui + hunt.fish + other.offense +
##      as.factor(filed_county) + as.factor(sentence_year)
##      Res.Df Df      F Pr(>F)
## 1 1131759
## 2 1131760 -1 3.696 0.05454 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```