590 HW1

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```r
# Load packages
library(pacman)
p_load(readr, data.table, dplyr, janitor, haven, here,
       tidyverse, skimr, lfe, stargazer, quantreg, hrbrthemes,
       tinytex, kableExtra, broom)
```

```r
# Load data
af = read_dta(here("afghanistan_anonymized_data.dta"))
```

```r
# Create nonoutlier column
af <- af %>% mutate(nonoutlier= ifelse((f07_num_ppl_hh_cnt > 20 & f07_observed == 1) |
                                    (f07_jeribs_cnt > 10 & f07_observed == 1)|
                                    (f07_num_sheep_cnt > 50 & f07_observed == 1)|
                                      (s08_num_ppl_hh_cnt > 20 & s08_observed == 1)|
                                      (s08_jeribs_cnt > 10 & s08_observed == 1) |
                                      (s08_num_sheep_cnt > 50 & s08_observed == 1)
                                      ,0,1))



# Tabulating nonoutliers
non_outlier_tab <- af %>% group_by(nonoutlier) %>%
    summarise(count = n(), percentage = n()/nrow(.))

non_outlier_tab
```

```
## # A tibble: 2 x 3
##   nonoutlier count percentage
##        <dbl> <int>      <dbl>
## 1          0    76     0.0421
## 2          1  1728     0.958
```

There are 76 non-outliers in the data given the specifications prior.

```r
# Run girls regression table 4 column 1 including outliers
reg3 = felm(f07_formal_school ~ treatment + chagcharan | 0 | 0 | clustercode,
            data = af %>% filter(f07_girl_cnt == 1 &
                                 f07_observed == 1))

# Run boys regression table 4 column 1including outliers
reg4 = felm(f07_formal_school ~ treatment + chagcharan | 0 | 0 | clustercode,
            data = af %>% filter(f07_girl_cnt == 0 &
                                 f07_observed == 1))
```

```
# Run girls regression table 4 column 1 with controls
reg5 = felm(f07_formal_school ~ treatment + chagcharan + f07_heads_child_cnt +
              f07_age_cnt + f07_duration_village_cnt +
              f07_farsi_cnt + f07_tajik_cnt + f07_farmer_cnt +
              f07_age_head_cnt + f07_yrs_ed_head_cnt + f07_num_ppl_hh_cnt +
              f07_jeribs_cnt + f07_num_sheep_cnt +
              f07_nearest_scl| 0 | 0 | clustercode,
            data = af %>% filter(f07_girl_cnt == 1 &
                                  nonoutlier == 1 &
                                  f07_observed == 1))

# Run girls regression table 4 column 1 with controls
reg6 = felm(f07_formal_school ~ treatment + chagcharan + f07_heads_child_cnt +
              f07_age_cnt + f07_duration_village_cnt +
              f07_farsi_cnt + f07_tajik_cnt + f07_farmer_cnt +
              f07_age_head_cnt + f07_yrs_ed_head_cnt + f07_num_ppl_hh_cnt +
              f07_jeribs_cnt + f07_num_sheep_cnt +
              f07_nearest_scl| 0 | 0 | clustercode,
            data = af %>% filter(f07_girl_cnt == 0 &
                                  nonoutlier == 1 &
                                  f07_observed == 1))
```

Question 3:

```
# girls regression for column 3
reg7 = felm(f07_both_norma_total ~ treatment + chagcharan | 0 | 0 | clustercode,
            data = af %>% filter(f07_girl_cnt == 1 &
                                  nonoutlier == 1 &
                                  f07_test_observed == 1))

# boys regression for column 3
reg8 = felm(f07_both_norma_total ~ treatment + chagcharan | 0 | 0 | clustercode,
            data = af %>% filter(f07_girl_cnt == 0 &
                                  nonoutlier == 1 &
                                  f07_test_observed == 1))
```

Question 4:

```
# girls regression column 4
reg9 = felm(f07_both_norma_total ~ treatment + chagcharan + f07_heads_child_cnt +
              f07_age_cnt + f07_duration_village_cnt +
              f07_farsi_cnt + f07_tajik_cnt + f07_farmer_cnt +
              f07_age_head_cnt + f07_yrs_ed_head_cnt + f07_num_ppl_hh_cnt +
              f07_jeribs_cnt + f07_num_sheep_cnt +
              f07_nearest_scl| 0 | 0 | clustercode,
            data = af %>% filter(f07_girl_cnt == 1 &
                                  nonoutlier == 1 &
                                  f07_test_observed == 1))
```

```r
# boys regression column 4
reg10 = felm(f07_both_norma_total ~ treatment + chagcharan + f07_heads_child_cnt +
              f07_age_cnt + f07_duration_village_cnt +
              f07_farsi_cnt + f07_tajik_cnt + f07_farmer_cnt +
              f07_age_head_cnt + f07_yrs_ed_head_cnt + f07_num_ppl_hh_cnt +
              f07_jeribs_cnt + f07_num_sheep_cnt +
              f07_nearest_scl| 0 | 0 | clustercode,
            data = af %>% filter(f07_girl_cnt == 0 &
                                 nonoutlier == 1 &
                                 f07_test_observed == 1))
```

Question 4b:

```r
# girls regression for column 6
reg11 = felm(s08_both_norma_total ~ treatment + chagcharan | 0 | 0 | clustercode,
            data = af %>% filter(s08_girls_cnt == 1 &
                                 nonoutlier == 1 &
                                 s08_test_observed == 1))

# boys regression for column 6
reg12 = felm(s08_both_norma_total ~ treatment + chagcharan | 0 | 0 | clustercode,
            data = af %>% filter(s08_girls_cnt == 0 &
                                 nonoutlier == 1 &
                                 s08_test_observed == 1))
# girls regression for column 7
reg13 = felm(s08_both_norma_total ~ treatment + chagcharan +
               s08_heads_child_cnt + s08_age_cnt +
               s08_duration_village_cnt + s08_farsi_cnt + s08_tajik_cnt +
               s08_farmer_cnt + s08_age_head_cnt + s08_yrs_ed_head_cnt +
               s08_num_ppl_hh_cnt + s08_jeribs_cnt + s08_num_sheep_cnt +
               s08_nearest_scl | 0 | 0 | clustercode,
            data = af %>% filter(s08_girls_cnt == 1 &
                                 nonoutlier == 1 &
                                 s08_test_observed == 1))

# boys regression for column 7
reg14 = felm(s08_both_norma_total ~ treatment + chagcharan +
               s08_heads_child_cnt  + s08_age_cnt +
               s08_duration_village_cnt + s08_farsi_cnt + s08_tajik_cnt +
               s08_farmer_cnt + s08_age_head_cnt + s08_yrs_ed_head_cnt +
               s08_num_ppl_hh_cnt + s08_jeribs_cnt + s08_num_sheep_cnt +
               s08_nearest_scl | 0 | 0 | clustercode,
            data = af %>% filter(s08_girls_cnt == 0 &
                                 nonoutlier == 1 &
                                 s08_test_observed == 1))
```

```r
# Getting mean values for column 1
col_1 = af %>%
  filter(treatment == 1 & nonoutlier == 1 & f07_observed == 1) %>%
  select(
```

```r
    c(f07_heads_child_cnt, f07_girl_cnt, f07_age_cnt, f07_duration_village_cnt,
                   f07_farsi_cnt,  f07_tajik_cnt,  f07_farmer_cnt,
                   f07_age_head_cnt, f07_yrs_ed_head_cnt, f07_num_ppl_hh_cnt, f07_jeribs_cnt,
                   f07_num_sheep_cnt, f07_nearest_scl)
  ) %>%
  mutate(
  across(.cols = c(f07_heads_child_cnt, f07_girl_cnt, f07_age_cnt, f07_duration_village_cnt,
                   f07_farsi_cnt,  f07_tajik_cnt,  f07_farmer_cnt,
                   f07_age_head_cnt, f07_yrs_ed_head_cnt, f07_num_ppl_hh_cnt, f07_jeribs_cnt,
                   f07_num_sheep_cnt, f07_nearest_scl), mean, na.rm = TRUE)
  ) %>% head(., 1) %>% unlist(.)

# Getting mean values for column 2
col_2 = af %>%
  filter(treatment == 0 & nonoutlier == 1 & f07_observed == 1) %>%
  select(
    c(f07_heads_child_cnt, f07_girl_cnt, f07_age_cnt, f07_duration_village_cnt,
                   f07_farsi_cnt,  f07_tajik_cnt,  f07_farmer_cnt,
                   f07_age_head_cnt, f07_yrs_ed_head_cnt, f07_num_ppl_hh_cnt, f07_jeribs_cnt,
                   f07_num_sheep_cnt, f07_nearest_scl)
  ) %>%
  mutate(
  across(.cols = c(f07_heads_child_cnt, f07_girl_cnt, f07_age_cnt, f07_duration_village_cnt,
                   f07_farsi_cnt,  f07_tajik_cnt,  f07_farmer_cnt,
                   f07_age_head_cnt, f07_yrs_ed_head_cnt, f07_num_ppl_hh_cnt, f07_jeribs_cnt,
                   f07_num_sheep_cnt, f07_nearest_scl), mean, na.rm = TRUE)
  ) %>% head(., 1) %>% unlist(.)



# Create regression functions for column 3
reg_function_coef = function(x){
    reg = felm(x ~ treatment | 0 | 0 | clustercode,
               data = af %>% filter(nonoutlier == 1 & f07_observed == 1))
    coef = coef(reg)[2]
    return(coef)
}


# Regression function for SE
reg_function_se = function(x){
  reg = felm(x ~ treatment | 0 | 0 | clustercode,
             data = af %>% filter(nonoutlier == 1 & f07_observed == 1))
  se = sqrt(diag(vcov(reg)))[2]
  return(se)
}



# Obtain column 3 coefficients
col_3_coefs = af %>%
  filter(nonoutlier == 1 & f07_observed == 1) %>%
  select(
```

```r
    c(f07_heads_child_cnt, f07_girl_cnt, f07_age_cnt, f07_duration_village_cnt,
                   f07_farsi_cnt,  f07_tajik_cnt,  f07_farmer_cnt,
                   f07_age_head_cnt, f07_yrs_ed_head_cnt, f07_num_ppl_hh_cnt, f07_jeribs_cnt,
                   f07_num_sheep_cnt, f07_nearest_scl)
  ) %>%
  mutate(
  across(.cols = c(f07_heads_child_cnt, f07_girl_cnt, f07_age_cnt, f07_duration_village_cnt,
                   f07_farsi_cnt,  f07_tajik_cnt,  f07_farmer_cnt,
                   f07_age_head_cnt, f07_yrs_ed_head_cnt, f07_num_ppl_hh_cnt, f07_jeribs_cnt,
                   f07_num_sheep_cnt, f07_nearest_scl), reg_function_coef)
  ) %>% head(., 1) %>% unlist(.)

# Obtain column 3 SE
col_3_se = af %>%
  filter(nonoutlier == 1 & f07_observed == 1) %>%
  select(
    c(f07_heads_child_cnt, f07_girl_cnt, f07_age_cnt, f07_duration_village_cnt,
                   f07_farsi_cnt,  f07_tajik_cnt,  f07_farmer_cnt,
                   f07_age_head_cnt, f07_yrs_ed_head_cnt, f07_num_ppl_hh_cnt, f07_jeribs_cnt,
                   f07_num_sheep_cnt, f07_nearest_scl)
  ) %>%
  mutate(
  across(.cols = c(f07_heads_child_cnt, f07_girl_cnt, f07_age_cnt, f07_duration_village_cnt,
                   f07_farsi_cnt,  f07_tajik_cnt,  f07_farmer_cnt,
                   f07_age_head_cnt, f07_yrs_ed_head_cnt, f07_num_ppl_hh_cnt, f07_jeribs_cnt,
                   f07_num_sheep_cnt, f07_nearest_scl), reg_function_se)
  ) %>% head(., 1) %>% unlist(.)

# Regression for column 7
col_7 = felm(f07_formal_school ~ f07_heads_child_cnt +
               f07_girl_cnt + f07_age_cnt + f07_duration_village_cnt +
               f07_farsi_cnt + f07_tajik_cnt + f07_farmer_cnt +
               f07_age_head_cnt + f07_yrs_ed_head_cnt + f07_num_ppl_hh_cnt +
               f07_jeribs_cnt + f07_num_sheep_cnt + f07_nearest_scl
             | 0 | 0 | clustercode,
             data = af %>%
               filter(nonoutlier == 1 & f07_observed == 1 & treatment == 0))

# Regression for column 8
col_8 = felm(f07_both_norma_total ~ f07_heads_child_cnt +
               f07_girl_cnt + f07_age_cnt + f07_duration_village_cnt +
               f07_farsi_cnt + f07_tajik_cnt + f07_farmer_cnt +
               f07_age_head_cnt + f07_yrs_ed_head_cnt + f07_num_ppl_hh_cnt +
               f07_jeribs_cnt + f07_num_sheep_cnt + f07_nearest_scl
             | 0 | 0 | clustercode,
             data = af %>%
               filter(nonoutlier == 1 & f07_observed == 1 &
                        f07_test_observed == 1 & treatment == 0))
```

```r
# further analysis regression
reg_fa = felm(f07_formal_school ~ f07_girl_cnt +
         f07_nearest_scl + f07_girl_cnt*f07_nearest_scl +
         I(f07_nearest_scl^2) | 0 | 0 | clustercode,
```

```
         data = af %>% filter(treatment==0 &
                              f07_observed == 1 &
                              nonoutlier == 1))
```

```
af = af %>% mutate(dist_near = if_else(f07_nearest_scl < 2, 1, 0),
               dist_close = if_else(f07_nearest_scl >= 2 & f07_nearest_scl < 3, 1, 0),
               dist_nclose = if_else(f07_nearest_scl >= 3 & f07_nearest_scl < 4, 1, 0),
               dist_far = if_else(f07_nearest_scl >= 4, 1, 0))

# Regression for near individuals
reg_near_g = felm(f07_formal_school ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 1 &
                              dist_near == 1
                              ))

# Regression for close individuals
reg_close_g = felm(f07_formal_school ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 1 &
                              dist_close == 1
                              ))

# Regression for not close individuals
reg_nclose_g = felm(f07_formal_school ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 1 &
                              dist_nclose == 1
                              ))

# Regression for far individuals
reg_far_g = felm(f07_formal_school ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 1 &
                              dist_far == 1
                              ))

# Regression for near individuals
reg_near_b= felm(f07_formal_school ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
```

```
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 0 &
                              dist_near == 1
                              ))

# Regression for close individuals
reg_close_b = felm(f07_formal_school ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 0 &
                              dist_close == 1
                              ))

# Regression for not close individuals
reg_nclose_b = felm(f07_formal_school ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 0 &
                              dist_nclose == 1
                              ))

# Regression for far individuals
reg_far_b = felm(f07_formal_school ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 0 &
                              dist_far == 1
                              ))
```

```
# Regression for near individuals
reg_test_near_g = felm(f07_both_norma_total ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 1 &
                              dist_near == 1
                              ))

# Regression for close individuals
reg_test_close_g = felm(f07_both_norma_total ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 1 &
```

```
                              dist_close == 1
                              ))

# Regression for not close individuals
reg_test_nclose_g = felm(f07_both_norma_total ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 1 &
                              dist_nclose == 1
                              ))

# Regression for far individuals
reg_test_far_g = felm(f07_both_norma_total ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 1 &
                              dist_far == 1
                              ))

# Regression for near individuals
reg_test_near_b= felm(f07_both_norma_total ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 0 &
                              dist_near == 1
                              ))

# Regression for close individuals
reg_test_close_b = felm(f07_both_norma_total ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 0 &
                              dist_close == 1
                              ))

# Regression for not close individuals
reg_test_nclose_b = felm(f07_both_norma_total ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 0 &
                              dist_nclose == 1
                              ))
```

```
# Regression for far individuals
reg_test_far_b = felm(f07_both_norma_total ~ treatment +
                   chagcharan | 0 | 0 | clustercode,
         data = af %>% filter(
                              f07_observed == 1 &
                              nonoutlier == 1 &
                              f07_girl_cnt == 0 &
                              dist_far == 1
                              ))
```

```
# Table 4.1
stargazer(reg1, reg2, reg5, reg6, reg7, reg8, reg9, reg10,
          keep.stat = c('n', 'rsq'),
          column.labels = c("      ", "      ", "      ", "      ",
                            "      ", "      ", "      ", "      "),
          title = "Table 4: Treatment Effects by Gender",
          covariate.labels = c('Treatment', "chagcharan",
                               "Household head's child",  "Age",
                               "Years family in village","Farsi",
                               "Tajik","Farmers","Age of household head",
                               "Years of education of household head","Number of people in Household",
                               "Jeribs of land","Number of sheep",
                               "Distance to nearest formal school"),
          dep.var.labels = c("Formaly Enroled", "Fall Test Scores"),
          #dep.var.labels = c(""),
          type = 'latex', header = F, float = TRUE,
          font.size = "small",
          column.sep.width = "-15pt",
          omit.stat=c("f", "ser"),
          notes = c("S.E Clustered by village"), notes.append = FALSE)
```

```
# Table 4b
stargazer(reg11, reg12, reg13, reg14,
          keep.stat = c('n', 'rsq'),
          title = "Table 4b: Treatment Effects by Gender",
          covariate.labels = c('Treatment', "chagcharan"),
          #dep.var.labels = c(""),
          omit = c("s08_heads_child_cnt", "s08_girl_cnt", "s08_age_cnt",
                   "s08_duration_village_cnt", "s08_farsi_cnt",
                   "s08_tajik_cnt", "s08_farmer_cnt", "s08_age_head_cnt",
                   "s08_yrs_ed_head_cnt", "s08_num_ppl_hh_cnt",
                   "s08_jeribs_cnt", "s08_num_sheep_cnt", "s08_nearest_scl",
                   "chagcharan"),
          type = 'latex', header = F, float = TRUE,
          notes =c("S.E Clustered by village"), notes.append = FALSE)
```

```
# Table 2
stargazer(col_7, col_8,
          keep.stat = c('n', 'rsq'),
          title = "Table 2: Demographic Characteristics By Research Groups",
          covariate.labels = c("Household head's child", "Girl",
                               "Age","Years family in village","Farsi",
```

Table 1: Table 4: Treatment Effects by Gender

	Dependent variable:							
	Formaly Enroled				Fall Test Scores			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	0.521^{***}	0.371^{***}	0.515^{***}	0.347^{***}	0.691^{***}	0.424^{***}	0.654^{***}	0.400^{***}
	(0.091)	(0.101)	(0.082)	(0.094)	(0.130)	(0.107)	(0.123)	(0.091)
chagcharan	0.176^{**}	0.081	0.154^{*}	0.086	0.282^{**}	0.113	0.275^{**}	0.118
	(0.085)	(0.096)	(0.082)	(0.088)	(0.123)	(0.104)	(0.117)	(0.075)
Household head's child			−0.043	0.022			−0.156	0.125
			(0.051)	(0.051)			(0.168)	(0.098)
Age			0.037^{**}	0.065^{***}			0.243^{***}	0.367^{***}
			(0.016)	(0.019)			(0.030)	(0.021)
Years family in village			−0.001	−0.0001			−0.003	−0.003
			(0.001)	(0.002)			(0.002)	(0.002)
Farsi			−0.082	0.019			−0.115	0.094
			(0.051)	(0.063)			(0.097)	(0.141)
Tajik			−0.063	0.077^{***}			−0.005	0.173^{***}
			(0.068)	(0.030)			(0.079)	(0.052)
Farmers			−0.017	-0.082^{**}			0.0002	−0.082
			(0.035)	(0.039)			(0.076)	(0.113)
Age of household head			−0.00004	−0.003			−0.001	0.005
			(0.002)	(0.002)			(0.004)	(0.003)
Years of education of household head			0.003	0.002			0.026^{**}	0.048^{***}
			(0.005)	(0.004)			(0.011)	(0.011)
Number of people in Household			0.007	−0.001			0.007	−0.001
			(0.006)	(0.009)			(0.007)	(0.014)
Jeribs of land			−0.009	0.016			0.016	0.018
			(0.013)	(0.011)			(0.030)	(0.032)
Number of sheep			0.006	0.004			0.008	0.013^{**}
			(0.004)	(0.003)			(0.008)	(0.005)
Distance to nearest formal school			−0.007	-0.059^{**}			0.001	−0.070
			(0.022)	(0.024)			(0.050)	(0.049)
Constant	0.084^{*}	0.325^{***}	−0.168	0.082	-0.486^{***}	0.267^{***}	-2.421^{***}	-3.017^{***}
	(0.050)	(0.058)	(0.249)	(0.239)	(0.097)	(0.091)	(0.600)	(0.204)
Observations	693	797	693	797	667	707	667	707
R^2	0.339	0.164	0.371	0.245	0.167	0.045	0.357	0.404

Note: S.E Clustered by village

Table 2: Table 4b: Treatment Effects by Gender

	Dependent variable:			
	s08_both_norma_total			
	(1)	(2)	(3)	(4)
Treatment	0.735***	0.380***	0.661***	0.413***
	(0.093)	(0.129)	(0.090)	(0.099)
chagcharan	−0.458***	0.281***	−3.052***	−3.144***
	(0.066)	(0.089)	(0.460)	(0.302)
Observations	689	712	687	709
R^2	0.165	0.042	0.378	0.410
Note:			S.E Clustered by village	

```
                               "Tajik","Farmers","Age of household head",
                               "Years of education of household head", "Number of people in household",
                               "Jeribs of land","Number of sheep",
                               "Distance to nearest formal school"),
          dep.var.labels = c("Formal enrollment","Test Scores"),
          type = 'latex', header = F, float = TRUE,
          notes =c("S.E Clustered by village"), flip = TRUE, out.header = FALSE)
```

```
col_1_df <- data.frame(name = c("Household head's child", "Girl",
                               "Age","Years family in village","Farsi",
                               "Tajik","Farmers","Age of household head",
                               "Years of education of household head", "Number of People in Household",
                               "Jeribs of land","Number of sheep",
                               "Distance to nearest formal school"))
col_1_df <- col_1_df %>% mutate(Treatment_avg = c(col_1))

col_1_df <- col_1_df %>% mutate(Control_avg = c(col_2))
col_1_df <- col_1_df %>% mutate(Estimated_diff = c(col_3_coefs))
col_1_df <- col_1_df %>% mutate(Estimated_diff_se = c(col_3_se))


col_1_df %>% kbl(col.names = c("Name","Treatment Avg",
                               "Control Avg", "Estimated Diff",
                               "Estimated Difference SE"),caption = "Table 2: Demographic Characteristi
```

```
# Further analysis part 1
stargazer(reg_fa, title = "Further Analysis: Distance Effect on Enrollment",
          covariate.labels = c("Girl", "Distance to Nearest Formal School",
                               "Girl Distance Interaction", "Distance Squared"),
          dep.var.labels = "Enrollment",
          type = "latex", notes = c("S.E Clustered by village"))
```

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu
% Date and time: Wed, Apr 28, 2021 - 3:07:59 PM

Table 3: Table 2: Demographic Characteristics By Research Groups

	Dependent variable:	
	Formal enrollment	Test Scores
	(1)	(2)
Household head's child	0.038	−0.090
	(0.061)	(0.113)
Girl	−0.208***	−0.682***
	(0.080)	(0.102)
Age	0.046***	0.287***
	(0.017)	(0.018)
Years family in village	−0.001	−0.005**
	(0.001)	(0.002)
Farsi	−0.039	0.074
	(0.074)	(0.119)
Tajik	−0.006	0.042
	(0.078)	(0.065)
Farmers	−0.050	−0.020
	(0.081)	(0.120)
Age of household head	−0.004	−0.004**
	(0.003)	(0.002)
Years of education of household head	0.001	0.036***
	(0.006)	(0.007)
Number of people in household	0.004	−0.004
	(0.006)	(0.011)
Jeribs of land	0.022***	0.056***
	(0.008)	(0.011)
Number of sheep	0.010***	0.016**
	(0.002)	(0.007)
Distance to nearest formal school	−0.060	−0.089**
	(0.043)	(0.037)
Constant	0.246	−1.649***
	(0.324)	(0.369)
Observations	708	653
R^2	0.155	0.401
Note:	*p<0.1; **p<0.05; ***p<0.01	
	S.E Clustered by village	

Table 4: Table 2: Demographic Characteristics By Research Groups

Name	Treatment Avg	Control Avg	Estimated Diff	Estimated Difference SE
Household head's child	0.9347826	0.9110169	0.0237657	0.0148157
Girl	0.4744246	0.4548023	0.0196223	0.0198052
Age	8.3209719	8.3121469	0.0088250	0.0399960
Years family in village	30.3024297	27.5939266	2.7085031	1.6051614
Farsi	0.2084399	0.2090395	-0.0005997	0.0544541
Tajik	0.2429668	0.2076271	0.0353396	0.0489753
Farmers	0.7173913	0.7274011	-0.0100098	0.0335306
Age of household head	40.1419437	39.9703390	0.1716048	1.1006431
Years of education of household head	3.3145780	3.0755650	0.2390130	0.4416666
Number of People in Household	8.3989770	7.8177966	0.5811804	0.3399672
Jeribs of land	1.3446292	1.2740113	0.0706179	0.1069723
Number of sheep	7.5524297	5.6313559	1.9210737	1.5041764
Distance to nearest formal school	2.9099495	3.1628723	-0.2529228	0.3492530

Table 5: Further Analysis: Distance Effect on Enrollment

	Dependent variable:
	Enrollment
Girl	-0.350^{***}
	(0.098)
Distance to Nearest Formal School	-0.147
	(0.280)
Girl Distance Interaction	0.008
	(0.030)
Distance Squared	0.047
	(0.033)
Constant	0.741
	(0.605)
Observations	708
R^2	0.080
Adjusted R^2	0.074
Residual Std. Error	0.427 (df = 703)
Note:	*p<0.1; **p<0.05; ***p<0.01
	S.E Clustered by village

```r
# Creating further analysis table for distance effects on enrollment
stargazer(reg_near_g,reg_close_g,reg_nclose_g, reg_far_g,
          reg_near_b,reg_close_b,reg_nclose_b, reg_far_b,
          keep.stat = c('n', 'rsq'),
          title = "Further Analysis: Distance Effect on Enrollment",
          covariate.labels = c('Treatment', "chagcharan"),
          column.labels = c("Short", "Med-Short", "Med-Long",
                            "Long", "Short", "Med-Short", "Med-Long", "Long"),
          dep.var.labels = c("Whether or not the Individual is in a Formal School"),
          type = 'latex', header = F, float = TRUE,
          column.sep.width = "-10pt",
          notes =c("S.E Clustered by village 1-4 (Female), 5-8 (Male).",
          "Both groups have increasing distance as the number increases."))
```

Table 6: Further Analysis: Distance Effect on Enrollment

	Dependent variable:							
	Whether or not the Individual is in a Formal School							
	Short	Med-Short	Med-Long	Long	Short	Med-Short	Med-Long	Long
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	0.448^{***}	0.528^{***}	0.696^{***}	0.481^{***}	0.319^{*}	0.447^{***}	0.235^{**}	0.504^{***}
	(0.122)	(0.140)	(0.073)	(0.066)	(0.190)	(0.160)	(0.093)	(0.092)
chagcharan	0.404^{***}	0.192	−0.156	0.368^{***}	0.377^{**}	0.028	0.058	0.153
	(0.069)	(0.117)	(0.126)	(0.064)	(0.150)	(0.152)	(0.111)	(0.094)
Constant	0.128	0.022	0.072	0.049	0.357^{*}	0.332^{***}	0.414^{***}	0.094
	(0.124)	(0.026)	(0.067)	(0.046)	(0.203)	(0.063)	(0.060)	(0.084)
Observations	94	272	204	123	88	328	232	149
R^2	0.173	0.400	0.403	0.420	0.225	0.213	0.068	0.310

Note: *p<0.1; **p<0.05; ***p<0.01
S.E Clustered by village 1-4 (Female), 5-8 (Male).
Both groups have increasing distance as the number increases.

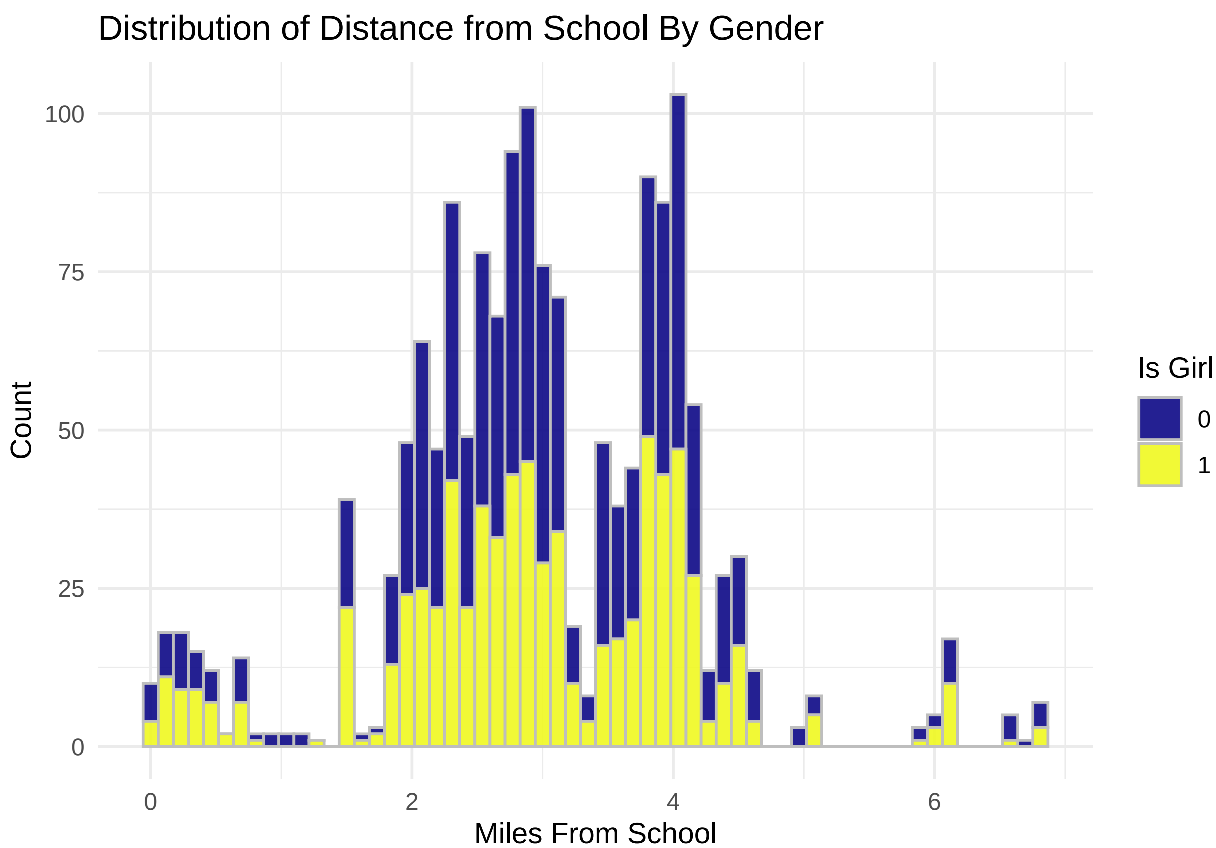
```r
# Creating further analysis table for distance effects on test scores
stargazer(reg_test_near_g, reg_test_close_g, reg_test_nclose_g,
          reg_test_far_g, reg_test_near_b, reg_test_close_b,
          reg_test_nclose_b,reg_test_far_b ,
          title = "Further Analysis: Distance Effect on Test Scores",
          keep.stat = c('n', 'rsq'),
          covariate.labels = c('Treatment', "chagcharan"),
          column.labels = c("Short", "Med-Short", "Med-Long", "Long",
                            "Short", "Med-Short", "Med-Long", "Long"),
          dep.var.labels = c("Total Normalized Test Score, Fall 2007"),
          type = 'latex', header = F, float = TRUE,
          column.sep.width = "-10pt",
          notes =c("S.E Clustered by village 1-4 (Female), 5-8 (Male).",
          "Both groups have increasing distance as the number increases."))
```

Table 7: Further Analysis: Distance Effect on Test Scores

	Dependent variable:							
	Total Normalized Test Score, Fall 2007							
	Short	Med-Short	Med-Long	Long	Short	Med-Short	Med-Long	Long
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	1.126***	0.789***	0.853***	0.563***	0.103*	0.512***	0.202*	0.895***
	(0.262)	(0.233)	(0.198)	(0.065)	(0.061)	(0.159)	(0.116)	(0.152)
chagcharan	0.773***	0.360*	−0.277	0.445***	−0.027	0.146	−0.111	0.371***
	(0.248)	(0.184)	(0.197)	(0.066)	(0.053)	(0.114)	(0.194)	(0.121)
Constant	−1.169***	−0.496***	−0.399**	−0.559***	0.396***	0.281***	0.497***	−0.351***
	(0.295)	(0.134)	(0.177)	(0.070)	(0.048)	(0.040)	(0.121)	(0.080)
Observations	91	259	196	121	81	290	198	138
R^2	0.217	0.212	0.174	0.193	0.002	0.069	0.006	0.221

Note: *p<0.1; **p<0.05; ***p<0.01
S.E Clustered by village 1-4 (Female), 5-8 (Male).
Both groups have increasing distance as the number increases.

```r
# Creating graph for assesing distance cutoffs
ggplot(af, aes(x = f07_nearest_scl, fill = as.factor(f07_girl_cnt))) +
  geom_histogram(color = "grey", bins = 60, alpha = .9) +
  scale_fill_viridis_d(option = "C") +
  theme_minimal() +
  labs(x = "Miles From School", y = "Count", fill = "Is Girl",
       title = "Distribution of Distance from School By Gender")
```




```
stargazer(reg3,reg4, out = "latex", dep.var.labels = "Formal School"
          , title = "Column 1 and 2 With Outliers", header = F)
```

Table 8: Column 1 and 2 With Outliers

	Dependent variable:	
	Formal School	
	(1)	(2)
treatment	0.510***	0.386***
	(0.087)	(0.099)
chagcharan	0.176**	0.071
	(0.080)	(0.093)
Constant	0.082*	0.321***
	(0.049)	(0.057)
Observations	730	830
R^2	0.325	0.171
Adjusted R^2	0.323	0.169
Residual Std. Error	0.410 (df = 727)	0.453 (df = 827)
Note:		*p<0.1; **p<0.05; ***p<0.01

Written Questions:

Outlier question 1:

An outlier observation is someone who had more than 50 sheep or goats owned by the household in 2007 and observed in the fall of 2007 or had more than 10 jeribs of land owned by the household and was observed in the fall of 2007 or had more than 20 people in the headcount in fall of 2007 or a person that has number of people in a household greater than 20 and are observed in summer of 2008. They are also an outlier if the number of jeribs of land counted is more than 10 and are observed in summer of 2008. Lastly if the number of sheep and goats is above 50 and they are observed in summer of 2008.

Table 4 Column 1 Question 5:

Both of our coefficient estimates were very similar as the treatment for girls and boys were exactly the same to the thousandth degree. The standard error for women was exactly the same while the standard error for men is unknown from table four.

Table 4 Column 1 Question 6:

The coefficients on all estimates are minimally different with the largest change being an increase in the treatment coefficient between boys of .15. For women the coefficient decreased by .11 when including outliers. The standard errors are also negligibly different.

Table 4 Column 2 Question 6:

Like in table 4, both treatments are statically significant. For girls, the only statistically significant control is the child's age in the fall of 2007 (5%). For The males there were more statistically significant controls. The age of the child, (1% level) if the child's family speaks Tajik, (5% level) if the head of household is a farmer or not, (10% level) and lastly the nearest schools distance, (5% level) . For both genders the child's age was significant and positive which means that as the child grows older, they are more likely to get a better test score.

Further Analysis:

To start looking at the relationship between schooling and attendance we regressed formal enrollment on the distance to the nearest school, whether the child was a girl, an interaction between the two and a variable for distance squared to control for any quadratic patterns. Surprisingly the only statistically significant variable in that regression was whether or not the child was a girl. This means that being farther away does not affect formal enrollment and distance does not affect girls more than boys. The regression output does implicate that women do attend school less than their boy counterparts. Now when re-looking at formal enrollment based on four distance types, short, medium short, medium long, and long, we can see that for girls, the amount of distance does not change the fact that treatment is significantly increasing enrollment and test scores. More specifically as distance increases, the effect of the treatment on tests for girls decreases, while it increases for men. Meaning that the treatment is most effective for girls who live close and boys who live farther away. Interestingly when looking at formal enrollment the treatment for both boys and girls are mostly similar for each distance type except when the schools were a medium long distance away meaning that distance does not play a significant role in how the treatment will affect the sexes. Overall it seems as though distance is a more important variable when looking at the test scores for boys and girls and not as much for their attendance rates.