

# Appendix

```
library(haven)
library(sandwich)
library(stargazer)
library(ggplot2)
library(car)
library(knitr)
library(plyr)
library(lfe)
library(plm)
library(gtools)
library(pander)

afghan <- read_dta("~/Documents/Stats2/pivotproject/afghandata.dta")

#rename variables

afghan <- rename(afghan, c("f07_hh_id"= "hh_id",
  "f07_heads_child_cnt" = "heads_child",
  "f07_girl_cnt" = "girl",
  "f07_age_head_cnt" = "age_head",
  "f07_yrs_ed_head_cnt" = "yrs_ed_head",
  "f07_jeribs_cnt" = "jeribs",
  "f07_num_sheep_cnt" = "num_sheep",
  "f07_duration_village_cnt" = "duration_village",
  "f07_farsi_cnt" = "farsi",
  "f07_tajik_cnt" = "tajik",
  "f07_farmer_cnt" = "farmer",
  "f07_num_ppl_hh_cnt" = "num_ppl_hh",
  "f07_test_observed" = "test_observed",
  "f07_formal_school" = "formal_school",
  "f07_nearest_scl" = "nearest_scl",

  # non-matching new names#
  "f07_age_cnt" = "age_child",
  "f07_both_norma_total" = "test_score_normalized"))

#age by gender

afghan$age_girl <- afghan$age_child*afghan$girl
afghan$age_girl[afghan$age_girl == 0] <- NA
afghan$age_boy <- afghan$age_child* !afghan$girl
afghan$age_boy[afghan$age_boy == 0] <- NA

attach(afghan)

# Create Balance Table create data frame of only the variables of interest
remove <- c("hh_id", "observation_id")
varlist <- colnames(afghan[, !names(afghan) %in% remove])
balance_variables <- afghan[, !colnames(afghan) %in% remove]

# generate counts
```

```

n_ctrl <- apply(balance_variables[balance_variables$treatment == 0, ], 2, function(x) length(which(!is.na(x))))
n_trt <- apply(balance_variables[balance_variables$treatment == 1, ], 2, function(x) length(which(!is.na(x))))

# generate table
balancetable <- cbind(n_ctrl, n_trt)
# drop treatment, test score, cluster rows
balancetable <- balancetable[!rownames(balancetable) == "treatment", ]
balancetable <- balancetable[!rownames(balancetable) == "test_score_normalized", ]
balancetable <- balancetable[!rownames(balancetable) == "clustercode", ]

# run t.tests, skipping treatment[14]
balance_tests <- lapply(varlist[c(1:13, 16:18, 20:21)], function(x) {
  t.test(as.formula(paste(x, "treatment", sep = "~")), data = balance_variables,
    alternative = "two.sided", mu = 0, paired = FALSE, var.equal = FALSE,
    conf.level = 0.95)
})

# extract and adjust p vals
balance_test_pvals <- t(sapply(balance_tests, function(x) {
  c(mean_ctrl = unname(x$estimate[1]), mean_trt = unname(x$estimate[2]), diff_means = unname(x$estimate[3]),
    unname(x$estimate[1]), p.value = p.adjust(x$p.value, method = "bonferroni",
    n = length(x)))
}))

balance_test_pvals <- data.frame(balance_test_pvals, stringsAsFactors = FALSE)
balance_test_pvals[] <- lapply(balance_test_pvals[], function(x) as.numeric(as.character(x)))
balancetable <- cbind(balancetable, balance_test_pvals)
balancetable <- round(balancetable, 3)
# Show table

```

```
kable(balancetable, caption = "Balance Table")
```

Table 1: Balance Table

|                  | n_ctrl | n_trt | mean_ctrl | mean_trt | diff_means | p.value |
|------------------|--------|-------|-----------|----------|------------|---------|
| heads_child      | 730    | 830   | 0.911     | 0.927    | 0.016      | 1.000   |
| girl             | 730    | 830   | 0.456     | 0.478    | 0.022      | 1.000   |
| age_child        | 730    | 830   | 8.321     | 8.322    | 0.001      | 1.000   |
| age_head         | 730    | 830   | 40.219    | 40.090   | -0.129     | 1.000   |
| yrs_ed_head      | 730    | 830   | 3.101     | 3.531    | 0.431      | 0.165   |
| jeribs           | 730    | 830   | 1.510     | 1.498    | -0.011     | 1.000   |
| num_sheep        | 730    | 830   | 6.404     | 9.586    | 3.181      | 0.000   |
| duration_village | 730    | 830   | 27.662    | 30.172   | 2.509      | 0.014   |
| farsi            | 730    | 830   | 0.205     | 0.210    | 0.004      | 1.000   |
| tajik            | 730    | 830   | 0.204     | 0.239    | 0.034      | 0.914   |
| farmer           | 730    | 830   | 0.729     | 0.707    | -0.022     | 1.000   |
| num_ppl_hh       | 730    | 830   | 7.905     | 8.741    | 0.835      | 0.000   |
| test_observed    | 730    | 830   | 0.925     | 0.925    | 0.001      | 1.000   |
| chagcharan       | 730    | 830   | 0.429     | 0.663    | 0.234      | 0.000   |
| formal_school    | 730    | 830   | 0.264     | 0.731    | 0.467      | 0.000   |
| nearest_scl      | 730    | 830   | 3.149     | 2.881    | -0.268     | 0.000   |
| age_girl         | 333    | 397   | 8.327     | 8.332    | 0.005      | 1.000   |
| age_boy          | 397    | 433   | 8.315     | 8.312    | -0.003     | 1.000   |

```
# Attrition summary stats
sum_list <- list(afghan$test_observed, afghan$test_observed[treatment == 1],
  afghan$test_observed[treatment == 0])
n <- sapply(sum_list, function(x) length(which(!is.na(x))))
mean <- sapply(sum_list, mean, na.rm = T)
sd <- sapply(sum_list, sd, na.rm = T)
sum_table <- cbind(n, mean, sd)
sum_table <- round(sum_table, digits = 3)
rownames(sum_table) <- c("% Test Taken - All", "% Test Taken - Treatment", "% Test Taken - Control")
kable(sum_table, caption = "Summary Table")
```

Table 2: Summary Table

|                          | n    | mean  | sd    |
|--------------------------|------|-------|-------|
| % Test Taken - All       | 1560 | 0.925 | 0.263 |
| % Test Taken - Treatment | 830  | 0.925 | 0.263 |
| % Test Taken - Control   | 730  | 0.925 | 0.264 |

```
# creating a dataset of only the attritted
afghanattrition <- afghan[!complete.cases(afghan), ]

# comparisons of treatment and control for attritted only

# omits test_observed[13], treatment[14], clustercode[15], and
# test_score[19]
attrition_by_treatment <- lapply(varlist[c(1:12, 16:18, 20:21)], function(x) {
  t.test(as.formula(paste(x, "treatment", sep = "~")), data = afghanattrition,
```

```

    alternative = "two.sided", mu = 0, paired = FALSE, var.equal = FALSE,
    conf.level = 0.95)
})

# create table
attrition_table <- t(sapply(attrition_by_treatment, function(x) {
  c(x$data.name, mean_crtl = unname(x$estimate[1]), mean_trt = unname(x$estimate[2]),
    diff_means = unname(x$estimate[2]) - unname(x$estimate[1]), p.value = p.adjust(x$p.value,
    method = "bonferroni", n = length(x)))
}))
rownames(attrition_table) <- attrition_table[, 1]
attrition_table <- attrition_table[, -c(1)]
attrition_table <- data.frame(attrition_table, stringsAsFactors = FALSE)
attrition_table[] <- lapply(attrition_table, function(x) as.numeric(as.character(x)))
rownames(attrition_table) <- varlist[c(1:12, 16:18, 20:21)]
kable(attrition_table, caption = "Attrition Table")

```

Table 3: Attrition Table

|                  | mean_crtl  | mean_trt   | diff_means | p.value   |
|------------------|------------|------------|------------|-----------|
| heads_child      | 0.9109589  | 0.9265060  | 0.0155471  | 1.0000000 |
| girl             | 0.4561644  | 0.4783133  | 0.0221489  | 1.0000000 |
| age_child        | 8.3205479  | 8.3216867  | 0.0011388  | 1.0000000 |
| age_head         | 40.2191781 | 40.0903614 | -0.1288166 | 1.0000000 |
| yrs_ed_head      | 3.1006849  | 3.5313253  | 0.4306404  | 0.1648415 |
| jeribs           | 1.5095890  | 1.4981928  | -0.0113963 | 1.0000000 |
| num_sheep        | 6.4041096  | 9.5855422  | 3.1814326  | 0.0000010 |
| duration_village | 27.6623288 | 30.1716867 | 2.5093580  | 0.0137177 |
| farsi            | 0.2054795  | 0.2096386  | 0.0041591  | 1.0000000 |
| tajik            | 0.2041096  | 0.2385542  | 0.0344446  | 0.9137745 |
| farmer           | 0.7287671  | 0.7072289  | -0.0215382 | 1.0000000 |
| num_ppl_hh       | 7.9054795  | 8.7409639  | 0.8354844  | 0.0000056 |
| chagcharan       | 0.4287671  | 0.6626506  | 0.2338835  | 0.0000000 |
| formal_school    | 0.2643836  | 0.7313253  | 0.4669417  | 0.0000000 |
| nearest_scl      | 3.1492138  | 2.8811876  | -0.2680262 | 0.0000229 |
| age_girl         | 8.3273273  | 8.3324937  | 0.0051664  | 1.0000000 |
| age_boy          | 8.3148615  | 8.3117783  | -0.0030832 | 1.0000000 |

```

kable(round(cor(afghan[, c("formal_school", "nearest_scl", "heads_child", "girl",
  "age_child", "age_head", "yrs_ed_head", "jeribs", "num_sheep", "duration_village",
  "farsi", "tajik", "farmer", "num_ppl_hh")])), digits = 2))

```

No two independent variables have correlation greater than 0.35.

#### # Modelling enrollment

```

r1 <- lm(formal_school ~ nearest_scl, data = afghan)
r2 <- lm(formal_school ~ nearest_scl + girl * age_child + age_head + num_sheep +
  jeribs + yrs_ed_head + heads_child + duration_village + num_ppl_hh + tajik +
  farsi + farmer + chagcharan, data = afghan)
r3 <- lm(formal_school ~ nearest_scl + girl * age_child + age_head + num_sheep +
  jeribs + yrs_ed_head + heads_child + duration_village + num_ppl_hh + tajik +
  farsi + farmer + as.factor(clustercode), data = afghan)

```

```

robust_se1 <- sqrt(diag(vcovHC(r1, type = "HC1")))
Trobust_se1 <- summary(r1, robust = T)$coefficients[, 2]

robust_se2 <- sqrt(diag(vcovHC(r2, type = "HC1")))
robust_se3 <- sqrt(diag(vcovHC(r3, type = "HC1")))

p1 <- glm(formal_school ~ nearest_scl, data = afghan, family = binomial(link = "probit"))
p2 <- glm(formal_school ~ nearest_scl + girl * age_child + age_head + num_sheep +
  jeribs + yrs_ed_head + heads_child + duration_village + num_ppl_hh + tajik +
  farsi + farmer + chagcharan, data = afghan, family = binomial(link = "probit"))
p3 <- glm(formal_school ~ nearest_scl + girl * age_child + age_head + num_sheep +
  jeribs + yrs_ed_head + heads_child + duration_village + num_ppl_hh + tajik +
  farsi + farmer + as.factor(clustercode), data = afghan, family = binomial(link = "probit"))

# display models
stargazer(r2, r3, omit.stat = c("f", "ser", "aic", "ll"), omit = "clustercode",
  omit.labels = "clustercode fixed effects?", se = list(robust_se2, robust_se3),
  title = "Linear OLS model", intercept.bottom = FALSE, header = FALSE, summary = FALSE)

stargazer(p2, p3, omit.stat = c("f", "ser", "aic", "ll"), omit = "clustercode",
  omit.labels = "clustercode fixed effects?", title = "Probit model", intercept.bottom = FALSE,
  header = FALSE, summary = FALSE)

# compare predictions
plot(predict(r2, type = "response"), predict(p2, type = "response"), xlab = "linear model",
  ylab = "probit model", main = "Chart 1: Comparing probit and linear models")
abline(a = 0, b = 1, col = "red")

```

**Chart 1: Comparing probit and linear models**

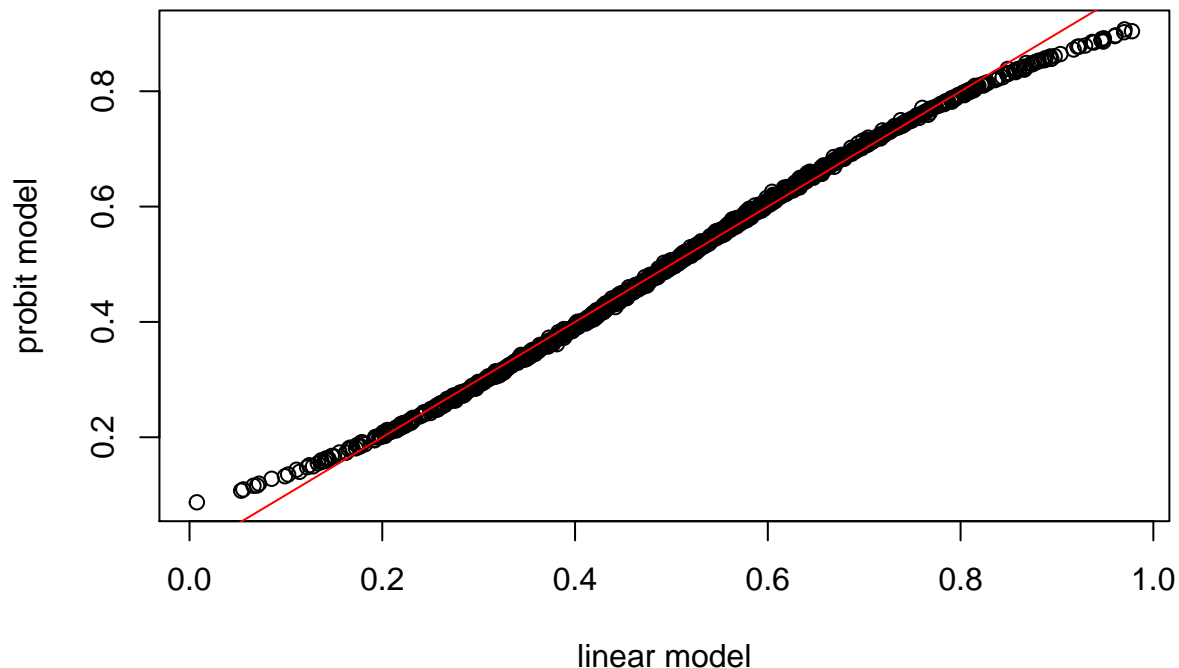


Table 4: Linear OLS model

|                            | <i>Dependent variable:</i> |                     |
|----------------------------|----------------------------|---------------------|
|                            | formal_school              |                     |
|                            | (1)                        | (2)                 |
| Constant                   | 0.135<br>(0.114)           | 0.365***<br>(0.122) |
| nearest_scl                | −0.051***<br>(0.010)       | −0.018*<br>(0.011)  |
| girl                       | 0.067<br>(0.123)           | 0.031<br>(0.111)    |
| age_child                  | 0.061***<br>(0.010)        | 0.059***<br>(0.009) |
| age_head                   | −0.003***<br>(0.001)       | −0.002<br>(0.001)   |
| num_sheep                  | 0.003***<br>(0.001)        | 0.001<br>(0.001)    |
| jeribs                     | −0.008<br>(0.006)          | 0.009*<br>(0.005)   |
| yrs_ed_head                | 0.005<br>(0.004)           | 0.002<br>(0.003)    |
| heads_child                | 0.041<br>(0.047)           | −0.007<br>(0.039)   |
| duration_village           | 0.0005<br>(0.001)          | −0.001<br>(0.001)   |
| num_ppl_hh                 | 0.004<br>(0.004)           | −0.001<br>(0.003)   |
| tajik                      | 0.059*<br>(0.030)          | 0.042<br>(0.027)    |
| farsi                      | −0.011<br>(0.031)          | 0.001<br>(0.027)    |
| farmer                     | −0.055*<br>(0.028)         | −0.042*<br>(0.025)  |
| chagcharan                 | 0.213***<br>(0.025)        |                     |
| girl:age_child             | −0.022<br>(0.015)          | −0.018<br>(0.013)   |
| clustercode fixed effects? | No                         | Yes                 |
| Observations               | 6 1,560                    | 1,560               |
| R <sup>2</sup>             | 0.121                      | 0.340               |
| Adjusted R <sup>2</sup>    | 0.113                      | 0.329               |

Notes:

\*p &lt; 0.1; \*\*p &lt; 0.05; \*\*\*p &lt; 0.01

Table 5: Probit model

|                            | <i>Dependent variable:</i>  |                     |
|----------------------------|-----------------------------|---------------------|
|                            | formal_school               |                     |
|                            | (1)                         | (2)                 |
| Constant                   | −1.004***<br>(0.315)        | −0.589<br>(0.397)   |
| nearest_scl                | −0.146***<br>(0.030)        | −0.072*<br>(0.038)  |
| girl                       | 0.205<br>(0.344)            | 0.195<br>(0.384)    |
| age_child                  | 0.168***<br>(0.028)         | 0.209***<br>(0.032) |
| age_head                   | −0.008***<br>(0.003)        | −0.006<br>(0.004)   |
| num_sheep                  | 0.009***<br>(0.003)         | 0.002<br>(0.004)    |
| jeribs                     | −0.021<br>(0.016)           | 0.039**<br>(0.019)  |
| yrs_ed_head                | 0.013<br>(0.010)            | 0.008<br>(0.011)    |
| heads_child                | 0.124<br>(0.128)            | −0.039<br>(0.144)   |
| duration_village           | 0.001<br>(0.002)            | −0.003<br>(0.003)   |
| num_ppl_hh                 | 0.010<br>(0.011)            | −0.004<br>(0.012)   |
| tajik                      | 0.162*<br>(0.084)           | 0.163*<br>(0.095)   |
| farsi                      | −0.029<br>(0.086)           | 0.006<br>(0.098)    |
| farmer                     | −0.151*<br>(0.078)          | −0.153*<br>(0.088)  |
| chagcharan                 | 0.576***<br>(0.070)         |                     |
| girl:age_child             | −0.062<br>(0.041)           | −0.073<br>(0.046)   |
| clustercode fixed effects? | No                          | Yes                 |
| Observations               | 7 1,560                     | 1,560               |
| <i>Note:</i>               | *p<0.1; **p<0.05; ***p<0.01 |                     |

```

# F test for language, wealth
linearHypothesis(p2, c("tajik = 0", "farsi = 0"), test = "F")

## Linear hypothesis test
##
## Hypothesis:
## tajik = 0
## farsi = 0
##
## Model 1: restricted model
## Model 2: formal_school ~ nearest_scl + girl * age_child + age_head + num_sheep +
##          jeribs + yrs_ed_head + heads_child + duration_village + num_ppl_hh +
##          tajik + farsi + farmer + chagcharan
##
##   Res.Df Df       F Pr(>F)
## 1    1546
## 2    1544  2 2.2928 0.1013

linearHypothesis(p2, c("num_sheep = 0", "jeribs = 0"), test = "F")

## Linear hypothesis test
##
## Hypothesis:
## num_sheep = 0
## jeribs = 0
##
## Model 1: restricted model
## Model 2: formal_school ~ nearest_scl + girl * age_child + age_head + num_sheep +
##          jeribs + yrs_ed_head + heads_child + duration_village + num_ppl_hh +
##          tajik + farsi + farmer + chagcharan
##
##   Res.Df Df       F Pr(>F)
## 1    1546
## 2    1544  2 3.8298 0.02192 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

# modelling test scores

regschoolontest <- lm(test_score_normalized ~ formal_school + nearest_scl +
  girl * age_child + age_head + num_sheep + jeribs + yrs_ed_head + heads_child +
  duration_village + num_ppl_hh + tajik + farsi + farmer, data = afghan)

regschoolontestFE <- lm(test_score_normalized ~ formal_school + heads_child +
  age_child * girl + as.factor(hh_id))

robust_se.sumregschoolontest <- sqrt(diag(vcovHC(regschoolontest, type = "HC1")))
robust_se.sumregschoolontestFE <- sqrt(diag(vcovHC(regschoolontestFE, type = "HC1")))

stargazer(regschoolontest, regschoolontestFE, se = list(robust_se.sumregschoolontest,
  robust_se.sumregschoolontestFE), omit.stat = c("f", "ser", "aic", "ll"),
  omit = "hh_id", omit.labels = "HH ID Fixed Effects?", title = "Test Scores",
  intercept.bottom = FALSE, header = FALSE, summary = FALSE)

```



Table 6: Test Scores

|                      | <i>Dependent variable:</i> |                     |
|----------------------|----------------------------|---------------------|
|                      | test_score_normalized      |                     |
|                      | (1)                        | (2)                 |
| Constant             | −2.825***<br>(0.190)       | −1.113<br>(0.926)   |
| formal_school        | 0.878***<br>(0.045)        | 0.838***<br>(0.095) |
| nearest_scl          | −0.010<br>(0.017)          |                     |
| girl                 | 0.364*<br>(0.197)          | 0.174<br>(0.302)    |
| age_child:girl       |                            | −0.076**<br>(0.035) |
| age_child            | 0.315***<br>(0.017)        | 0.341***<br>(0.025) |
| age_head             | 0.003*<br>(0.002)          |                     |
| num_sheep            | 0.006***<br>(0.002)        |                     |
| jeribs               | 0.004<br>(0.010)           |                     |
| yrs_ed_head          | 0.033***<br>(0.006)        |                     |
| heads_child          | 0.014<br>(0.084)           | 0.080<br>(0.243)    |
| duration_village     | −0.002<br>(0.001)          |                     |
| num_ppl_hh           | 0.005<br>(0.006)           |                     |
| tajik                | 0.069<br>(0.050)           |                     |
| farsi                | 0.034<br>(0.054)           |                     |
| farmer               | 0.001<br>(0.049)           |                     |
| girl:age_child       | −0.099***<br>(0.023)       |                     |
| HH ID Fixed Effects? | No                         | Yes                 |
| Observations         | 1,443                      | 1,443               |

```

# treatment effects by gender enroll~ treatment test score ~ treatment
treat_enrollment <- (lm(formal_school ~ treatment, data = afghan))
treat_enrollment_girl <- (lm(formal_school ~ treatment + treatment * girl, data = afghan))
treat_enrollment.adv <- (lm(formal_school ~ treatment + nearest_scl + girl *
  age_child + age_head + num_sheep + jeribs + yrs_ed_head + heads_child +
  duration_village + num_ppl_hh + tajik + farsi + farmer + chagcharan, data = afghan))
treat_enrollment_girl.adv <- (lm(formal_school ~ treatment + treatment * girl +
  nearest_scl + girl * age_child + age_head + num_sheep + jeribs + yrs_ed_head +
  heads_child + duration_village + num_ppl_hh + tajik + farsi + farmer + chagcharan,
  data = afghan))
treat_enrollment.adv.clus <- (lm(formal_school ~ treatment + nearest_scl + girl *
  age_child + age_head + num_sheep + jeribs + yrs_ed_head + heads_child +
  duration_village + num_ppl_hh + tajik + farsi + farmer + as.factor(clustercode),
  data = afghan))
treat_enrollment_girl.adv.clus <- (lm(formal_school ~ treatment + treatment *
  girl + nearest_scl + girl * age_child + age_head + num_sheep + jeribs +
  yrs_ed_head + heads_child + duration_village + num_ppl_hh + tajik + farsi +
  farmer + as.factor(clustercode), data = afghan))
robust_se.treat_enrollment <- sqrt(diag(vcovHC(treat_enrollment, type = "HC1")))
robust_se.treat_enrollment_girl <- sqrt(diag(vcovHC(treat_enrollment_girl, type = "HC1")))
robust_se.treat_enrollment.adv <- sqrt(diag(vcovHC(treat_enrollment.adv, type = "HC1")))
robust_se.treat_enrollment_girl.adv <- sqrt(diag(vcovHC(treat_enrollment_girl.adv,
  type = "HC1")))
robust_se.treat_enrollment.adv.clus <- sqrt(diag(vcovHC(treat_enrollment.adv.clus,
  type = "HC1")))
robust_se.treat_enrollment_girl.adv.clus <- sqrt(diag(vcovHC(treat_enrollment_girl.adv.clus,
  type = "HC1")))

stargazer(treat_enrollment, treat_enrollment_girl, treat_enrollment.adv, treat_enrollment_girl.adv,
  treat_enrollment.adv.clus, treat_enrollment_girl.adv.clus, se = list(robust_se.treat_enrollment,
  robust_se.treat_enrollment_girl, robust_se.treat_enrollment.adv, robust_se.treat_enrollment_girl,
  robust_se.treat_enrollment.adv.clus, robust_se.treat_enrollment_girl.adv.clus),
  omit = c("clustercode", "age_head", "num_sheep", "jeribs", "yrs_ed_head",
  "heads_child", "duration_village", "num_ppl_hh", "tajik", "farsi", "farmer"),
  add.lines = list(c("Cluster Fixed Effects?", "No", "No", "No", "No", "Yes",
  "Yes"), c("Additional Control variables?", "No", "No", "Yes", "Yes",
  "Yes", "Yes")), omit.stat = c("f", "ser", "aic", "ll"), title = "Effect of treatment on enrollment",
  intercept.bottom = FALSE, header = FALSE, summary = FALSE)

# test score ~ treatment
treat_test <- (lm(test_score_normalized ~ treatment, data = afghan))
treat_test_girl <- (lm(test_score_normalized ~ treatment + treatment * girl,
  data = afghan))
treat_test.adv <- (lm(test_score_normalized ~ treatment + nearest_scl + girl *
  age_child + age_head + num_sheep + jeribs + yrs_ed_head + heads_child +
  duration_village + num_ppl_hh + tajik + farsi + farmer + chagcharan, data = afghan))
treat_test_girl.adv <- (lm(test_score_normalized ~ treatment + treatment * girl +
  nearest_scl + girl * age_child + age_head + num_sheep + jeribs + yrs_ed_head +
  heads_child + duration_village + num_ppl_hh + tajik + farsi + farmer + chagcharan,
  data = afghan))
treat_test.adv.clus <- (lm(test_score_normalized ~ treatment + nearest_scl +
  girl * age_child + age_head + num_sheep + jeribs + yrs_ed_head + heads_child +
  duration_village + num_ppl_hh + tajik + farsi + farmer + as.factor(clustercode),
  data = afghan))

```

Table 7: Effect of treatment on enrollment by gender

|                               | <i>Dependent variable:</i> |                      |                      |                      |                     |                     |
|-------------------------------|----------------------------|----------------------|----------------------|----------------------|---------------------|---------------------|
|                               | formal_school              |                      |                      |                      |                     |                     |
|                               | (1)                        | (2)                  | (3)                  | (4)                  | (5)                 | (6)                 |
| Constant                      | 0.264***<br>(0.016)        | 0.350***<br>(0.024)  | −0.018<br>(0.106)    | 0.016<br>(0.106)     | −0.014<br>(0.113)   | 0.018<br>(0.112)    |
| treatment                     | 0.467***<br>(0.022)        | 0.405***<br>(0.032)  | 0.426***<br>(0.024)  | 0.358***<br>(0.032)  | 0.379***<br>(0.085) | 0.312***<br>(0.087) |
| nearest_scl                   |                            |                      | −0.031***<br>(0.009) | −0.031***<br>(0.009) | −0.018*<br>(0.011)  | −0.019*<br>(0.011)  |
| girl                          |                            | −0.188***<br>(0.031) | 0.062<br>(0.114)     | −0.014<br>(0.113)    | 0.031<br>(0.111)    | −0.048<br>(0.109)   |
| treatment:girl                |                            | 0.138***<br>(0.044)  |                      | 0.144***<br>(0.042)  |                     | 0.150***<br>(0.041) |
| age_child                     |                            |                      | 0.060***<br>(0.009)  | 0.060***<br>(0.009)  | 0.059***<br>(0.009) | 0.059***<br>(0.009) |
| chagcharan                    |                            |                      | 0.121***<br>(0.024)  | 0.124***<br>(0.024)  |                     |                     |
| girl:age_child                |                            |                      | −0.022<br>(0.013)    | −0.022<br>(0.013)    | −0.018<br>(0.013)   | −0.018<br>(0.013)   |
| Cluster Fixed Effects?        | No                         | No                   | No                   | No                   | Yes                 | Yes                 |
| Additional Control variables? | No                         | No                   | Yes                  | Yes                  | Yes                 | Yes                 |
| Observations                  | 1,560                      | 1,560                | 1,560                | 1,560                | 1,560               | 1,560               |
| R <sup>2</sup>                | 0.217                      | 0.235                | 0.285                | 0.290                | 0.340               | 0.345               |
| Adjusted R <sup>2</sup>       | 0.217                      | 0.234                | 0.277                | 0.282                | 0.329               | 0.335               |

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

```

treat_test_girl.adv_clus <- (lm(test_score_normalized ~ treatment + treatment *
  girl + nearest_scl + girl * age_child + age_head + num_sheep + jeribs +
  yrs_ed_head + heads_child + duration_village + num_ppl_hh + tajik + farsi +
  farmer + as.factor(clustercode), data = afghan))
robust_se.treat_test <- sqrt(diag(vcovHC(treat_test, type = "HC1")))
robust_se.treat_test_girl <- sqrt(diag(vcovHC(treat_test_girl, type = "HC1")))
robust_se.treat_test.adv <- sqrt(diag(vcovHC(treat_test.adv, type = "HC1")))
robust_se.treat_test_girl.adv <- sqrt(diag(vcovHC(treat_test_girl.adv, type = "HC1")))
robust_se.treat_test.adv_clus <- sqrt(diag(vcovHC(treat_test.adv_clus, type = "HC1")))
robust_se.treat_test_girl.adv_clus <- sqrt(diag(vcovHC(treat_test_girl.adv_clus,
  type = "HC1")))

stargazer(treat_test, treat_test_girl, treat_test.adv, treat_test_girl.adv,
  treat_test.adv_clus, treat_test_girl.adv_clus, se = list(robust_se.treat_test,
  robust_se.treat_test_girl, robust_se.treat_test.adv, robust_se.treat_test_girl.adv,
  robust_se.treat_test.adv_clus, robust_se.treat_test_girl.adv_clus),
  omit = c("clustercode", "age_head", "num_sheep", "jeribs", "yrs_ed_head",
  "heads_child", "duration_village", "num_ppl_hh", "tajik", "farsi", "farmer"),
  add.lines = list(c("Cluster Fixed Effects?", "No", "No", "No", "No", "Yes",
  "Yes"), c("Additional Control variables?", "No", "No", "Yes", "Yes",
  "Yes", "Yes")), title = "Effect of treatment on test score by gender",
  omit.stat = c("f", "ser", "aic", "ll"), intercept.bottom = FALSE, header = FALSE,
  summary = FALSE)

# Local average treatment effect

q6.full <- lm(test_score_normalized ~ formal_school * treatment, data = afghan)
q6.boys <- lm(test_score_normalized ~ formal_school * treatment, data = afghan,
  subset = (afghan$girl == 0))
q6.girls <- lm(test_score_normalized ~ formal_school * treatment, data = afghan,
  subset = (afghan$girl == 1))

q6.full_se <- sqrt(diag(vcovHC(q6.full, type = "HC1")))
q6.boys_se <- sqrt(diag(vcovHC(q6.boys, type = "HC1")))
q6.girls_se <- sqrt(diag(vcovHC(q6.girls, type = "HC1")))

stargazer(q6.full, q6.boys, q6.girls, title = "Local average treatment effects",
  omit.stat = c("f", "ser", "aic", "ll"), intercept.bottom = FALSE, header = FALSE,
  summary = FALSE, se = list(q6.full_se, q6.boys_se, q6.girls_se))

```

Table 8: Effect of treatment on test score by gender

|                               | <i>Dependent variable:</i> |                      |                      |                      |                      |                      |
|-------------------------------|----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                               | test_score_normalized      |                      |                      |                      |                      |                      |
|                               | (1)                        | (2)                  | (3)                  | (4)                  | (5)                  | (6)                  |
| Constant                      | 0.006<br>(0.039)           | 0.331***<br>(0.057)  | −2.933***<br>(0.209) | −2.871***<br>(0.208) | −2.816***<br>(0.227) | −2.763***<br>(0.227) |
| treatment                     | 0.580***<br>(0.055)        | 0.462***<br>(0.080)  | 0.504***<br>(0.047)  | 0.391***<br>(0.066)  | 0.539***<br>(0.167)  | 0.440**<br>(0.173)   |
| nearest_scl                   |                            |                      | −0.031*<br>(0.019)   | −0.032*<br>(0.019)   | 0.009<br>(0.022)     | 0.008<br>(0.022)     |
| girl                          |                            | −0.683***<br>(0.072) | 0.434**<br>(0.218)   | 0.313<br>(0.216)     | 0.492**<br>(0.216)   | 0.375*<br>(0.213)    |
| treatment:girl                |                            | 0.267**<br>(0.104)   |                      | 0.232***<br>(0.087)  |                      | 0.225***<br>(0.085)  |
| age_child                     |                            |                      | 0.368***<br>(0.018)  | 0.368***<br>(0.018)  | 0.376***<br>(0.018)  | 0.376***<br>(0.018)  |
| chagcharan                    |                            |                      | 0.200***<br>(0.047)  | 0.206***<br>(0.047)  |                      |                      |
| girl:age_child                |                            |                      | −0.120***<br>(0.026) | −0.121***<br>(0.026) | −0.127***<br>(0.025) | −0.127***<br>(0.025) |
| Cluster Fixed Effects?        | No                         | No                   | No                   | No                   | Yes                  | Yes                  |
| Additional Control variables? | No                         | No                   | Yes                  | Yes                  | Yes                  | Yes                  |
| Observations                  | 1,443                      | 1,443                | 1,443                | 1,443                | 1,443                | 1,443                |
| R <sup>2</sup>                | 0.072                      | 0.138                | 0.408                | 0.410                | 0.436                | 0.438                |
| Adjusted R <sup>2</sup>       | 0.071                      | 0.137                | 0.401                | 0.403                | 0.426                | 0.428                |

*Note:*

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01

Table 9: Local average treatment effects

|  | <i>Dependent variable:</i> |                     |                      |
|--|----------------------------|---------------------|----------------------|
|  | test_score_normalized      |                     |                      |
|  | (1)                        | (2)                 | (3)                  |
| Constant                                 | −0.233***<br>(0.040)       | −0.022<br>(0.067)   | −0.414***<br>(0.044) |
| formal_school                            | 0.902***<br>(0.085)        | 0.999***<br>(0.104) | 0.370***<br>(0.127)  |
| treatment                                | −0.080<br>(0.077)          | −0.074<br>(0.131)   | −0.076<br>(0.085)    |
| formal_school:treatment                  | 0.320***<br>(0.114)        | 0.165<br>(0.163)    | 0.857***<br>(0.155)  |
| Observations                             | 1,443                      | 739                 | 704                  |
| R <sup>2</sup>                           | 0.268                      | 0.235               | 0.326                |
| Adjusted R <sup>2</sup>                  | 0.267                      | 0.232               | 0.323                |
| <i>Note:</i> *p<0.1; **p<0.05; ***p<0.01 |                            |                     |                      |