Can Exposure to Moral Foundations Affect Our Reactions to Policy Proposals?

W241 Experiments and Causality (submitted December X, 2019)

Kevin Hartman, Hanna Rocks, Tim Spittle, and Jay Venkata

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Abstract

TBD

Contents

1 Background

[[TBD]]

2 Data

[[TBD]]

```
# Pilot
# results_panel1_raw = read.xlsx("./data/pilot/survey_results_pilot_panel1.xlsx") %>% filter(StartDate
# results_panel2_raw = read.xlsx("./data/pilot/survey_results_pilot_panel2.xlsx") %>% filter(StartDate
# participant_detail_panel1 = read.csv("./data/pilot/participant_detail_pilot_panel1.csv", stringsAsFac
# participant_detail_panel2 = read.csv("./data/pilot/participant_detail_pilot_panel2.csv", stringsAsFac

# Study
results_panel1_raw = read.xlsx("./data/study/MF Framing Pilot - Full Recruitment - Panel 1_November 20,
results_panel2_raw = read.xlsx("./data/study/MF Framing Pilot - Full Recruitment - Panel 2_November 20,
participant_detail_panel1 = read.csv("./data/study/prolific_export_5dd4a350108b6748b25b5de1.csv", string
participant_detail_panel2 = read.csv("./data/study/prolific_export_5dd4a34135582248315dfdca.csv", string
```

2.0.1 Data Cleaning

[[TBD]] [1]

```
# Stack panel data
results_stacked = bind_rows(results_panel1_raw %>% mutate(panel = 1)
                            , results_panel2_raw %>% mutate(panel = 2)) %>%
  merge(bind_rows(participant_detail_panel1, participant_detail_panel2) %>% select(-session_id, -status
        , by.x = "PROLIFIC_PID"
        , by.y = "participant_id"
        , all.x = TRUE)

# Adjust all variable names to remove '-' and '.' + lowercase
names(results_stacked) = tolower(gsub(x = names(results_stacked), pattern = "\\-|\\.", replacement = "_

# Discrete variables as factors (manual ordering for plotting)
ideology_levels = c("Very Liberal", "Lean Liberal", "Liberal", "Moderate", "Conservative", "Lean Conser
ubi_group_levels = c("Promoter", "Passive", "Detractor")
ubi_familiarity_levels = c("Extremely familiar", "Very familiar", "Moderately familiar", "Slightly fami

results_full = results_stacked  %>%
  # Define arms and nodes
  mutate(arm = case_when(grepl('a', fc_b_1, ignore.case = TRUE) ~ "purity_base"
                         , grepl('a', fc_c_1, ignore.case = TRUE) ~ "purity_extension"
                         , grepl('a', fc_d_1, ignore.case = TRUE) ~ "fairness_base"
                         , grepl('a', fc_e_1, ignore.case = TRUE) ~ "fairness_extension"
                         , TRUE ~ "control") %>% factor(levels = c("control", "purity_base", "purity_ex
         , node = paste0(arm, "_panel_", panel)
         , arm_level = case_when(grepl('base', arm) ~ 'base'
                                 , grepl('extension', arm) ~ 'extension'
```

[1] *[[Example footnote]]*

```
                                , TRUE ~ 'control') %>% factor(levels = c("control", "base", "extensio
        # Combine reaction vars from different arms
        , purity_q1_self = case_when(grepl('a', fc_b_1, ignore.case = TRUE) ~ fc_b_1
                                , TRUE ~ fc_c_1)
        , purity_q2_repulsed = case_when(grepl('a', fc_b_2, ignore.case = TRUE) ~ fc_b_2
                                , TRUE ~ fc_c_2)
        , purity_q3_injustice = case_when(grepl('a', fc_b_3, ignore.case = TRUE) ~ fc_b_3
                                , TRUE ~ fc_c_3)
        , purity_q4_relieved = fc_c_4
        , fairness_q1_self = case_when(grepl('a', fc_d_1, ignore.case = TRUE) ~ fc_d_1
                                , TRUE ~ fc_e_1)
        , fairness_q2_pain = case_when(grepl('a', fc_d_2, ignore.case = TRUE) ~ fc_d_2
                                    , TRUE ~ fc_e_2)
        , fairness_q3_injustice = case_when(grepl('a', fc_d_3, ignore.case = TRUE) ~ fc_d_3
                                , TRUE ~ fc_e_3)
        , fairness_q4_relieved = fc_e_4
        , open_text_reaction = q3_fc2
        # Factor variables
        , ideology = factor(polispect, levels = ideology_levels)
        , ideology_bin = case_when(is.na(ideology) ~ "missing"
                                , ideology == "Very Liberal" ~ "liberal"
                                , ideology == "Lean Liberal" ~ "liberal"
                                , ideology == "Liberal" ~ "liberal"
                                , ideology == "Very Conservative" ~ "conservative"
                                , ideology == "Lean Conservative" ~ "conservative"
                                , ideology == "Conservative" ~ "conservative"
                                , TRUE ~ "moderate")
        , ubi_group = factor(ubi_2_nps_group, levels = ubi_group_levels)
        , ubi_familiarity = factor(ubi_f, levels = ubi_familiarity_levels)
        , ubi_familiarity_bin = case_when(ubi_f == "Not familiar at all" ~ 0
                                , TRUE ~ 1)
        # Numeric variables
        , ubi_number = as.numeric(ubi_2))

results_clean = results_full %>%
  select(prolific_pid, panel, arm, node, arm_level
        , ideology, ideology_bin, age, gender, urban, employment_status, student_status
        , purity_q1_self, purity_q2_repulsed, purity_q3_injustice, purity_q4_relieved
        , fairness_q1_self, fairness_q2_pain, fairness_q3_injustice, fairness_q4_relieved
        , open_text_reaction
        , ubi_number, ubi_group, ubi_familiarity, ubi_familiarity_bin)
```

2.1 Exploratory Analysis

[[TBD]]

2.1.1 Study Setup

```
arm_counts_bypanel = results_clean %>%
  group_by(arm, panel, node) %>%
  summarise(count = n())
```

```r
arm_counts_all = results_clean %>%
  group_by(arm) %>%
  summarise(count = n())

# nodes = data.frame(
#   id = 1:12
#   , group = c("liberal", "conservative", arm_counts$arm)
#   # , label = c("liberal", "conservative", arm_counts$node)
#   , label = c("All Liberals", "All Conservatives"
#               , "Control: Liberal", "Control: Conservative"
#               , "Fairness Base: Liberal", "Fairness Base: Conservative"
#               , "Fairness Extension: Liberal", "Fairness Extension: Conservative"
#               , "Purity Base: Liberal", "Purity Base: Conservative"
#               , "Purity Extension: Liberal", "Purity Extension: Conservative")
#   , value = c(sum(arm_counts$count[arm_counts$panel==1]), sum(arm_counts$count[arm_counts$panel==2]),
#   , shape = rep("box", 12)
#     # color, shape
#   )
#
# edges = data.frame(
#   from = c(1, 2, 1, 2, 1, 2,  5, 6, 9,  10)
#   , to = c(3, 4, 5, 6, 9, 10, 7, 8, 11, 12)
#   , dashes = c(rep(FALSE, 6), rep(TRUE, 4))
#   )

nodes = data.frame(
  id = 1:7
  , group = c("ideology", "ideology"
              , "fairness", "fairness"
              , "purity", "purity"
              , "control"
              )
  # , label = c("liberal", "conservative", arm_counts$node)
  , label = c("All Liberals", "All Conservatives"
              , "Fairness Base"
              , "Fairness Extension"
              , "Purity Base"
              , "Purity Extension"
              , "Control"
  )
  , level = c(1, 1, 2, 3, 2, 3, 2)
  # , mass = c(sum(arm_counts_bypanel$count[arm_counts_bypanel$panel==1])
  #             , sum(arm_counts_bypanel$count[arm_counts_bypanel$panel==2]), arm_counts_all$count)
  , shape = rep("box", 7)
  )

edges = data.frame(
  from = c(1, 2, 1, 2, 1, 2, 3, 5)
  , to = c(3, 3, 5, 5, 7, 7, 4, 6)
  , dashes = c(rep(FALSE, 6), rep(TRUE, 2))
  )

visNetwork(nodes, edges) %>%
```

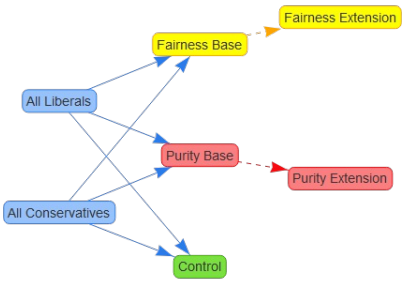

Figure 1: Study Setup

```
  visEdges(arrows = "to") %>%
  visHierarchicalLayout(direction = "LR")
```

2.1.2 Demographics

```
grpstackbar_plot = ggplot() +
  facet_grid( ~ panel) +
  scale_fill_brewer(type = "div", palette = 5, direction = -1, aesthetics = "fill") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

# Ideology
plot_ideology = grpstackbar_plot +
  geom_bar(data = results_clean %>%  group_by(ideology, panel) %>% summarise(count = n())
           , aes(x = ideology, y = count, fill = ideology)
           , stat = "identity") +
  theme(legend.position = "left", axis.text.x=element_blank())
# Age
plot_age = grpstackbar_plot +
  geom_bar(data = results_clean %>%  group_by(age, ideology, panel) %>% summarise(count = n())
           , aes(x = age, y = count, fill = ideology)
           , stat = "identity", show.legend = FALSE)

# Gender
plot_gender = grpstackbar_plot +
```

```
  geom_bar(data = results_clean %>%  group_by(gender, ideology, panel) %>% summarise(count = n())
           , aes(x = gender, y = count, fill = ideology)
           , stat = "identity", show.legend = FALSE)

# Urban
plot_urban = grpstackbar_plot +
  geom_bar(data = results_clean %>%  group_by(urban, ideology, panel) %>% summarise(count = n())
           , aes(x = urban, y = count, fill = ideology)
           , stat = "identity", show.legend = FALSE)

grid.arrange(plot_ideology, plot_age
             , plot_gender, plot_urban
             , nrow = 2)
```

Example reference to r cell *Figure 2* shows *[[TBD]]*

2.1.3 Reactions

```
response_levels = c("A great deal", "A lot", "A moderate amount", "A little", "None at all")

results_response = results_clean %>%
  select(panel, arm
         , purity_q1_self, purity_q2_repulsed, purity_q3_injustice, purity_q4_relieved
         , fairness_q1_self, fairness_q2_pain, fairness_q3_injustice, fairness_q4_relieved) %>%
  gather(prompt, value, -panel, -arm) %>%
  filter(!is.na(value)) %>%
  group_by(panel, arm, prompt, value) %>% summarise(count = n()) %>%
  mutate(response = factor(value, levels = response_levels))
  # spread(value, count) %>%
  # arrange(panel, arm, prompt) %>%
  # select("panel", "arm", "prompt", "A great deal", "A lot", "A moderate amount", "A little", "None at

ggplot(data = results_response
       , aes(x = prompt, y = response, fill = count)) +
  geom_tile() +
  facet_grid(rows = vars(arm), cols = vars(panel)) +
  scale_fill_distiller(direction = 1) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

2.1.4 Outcome

```
# Histogram of familiarity
plot_familiarity = ggplot(data = results_clean %>% group_by(ubi_familiarity, ideology, panel) %>% summa
       , aes(x = ubi_familiarity, y = count, fill = ideology)) +
  geom_bar(stat="identity", show.legend = FALSE) +
  facet_grid( ~ panel) +
  scale_fill_brewer(type = "div", palette = 5, direction = -1, aesthetics = "fill") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

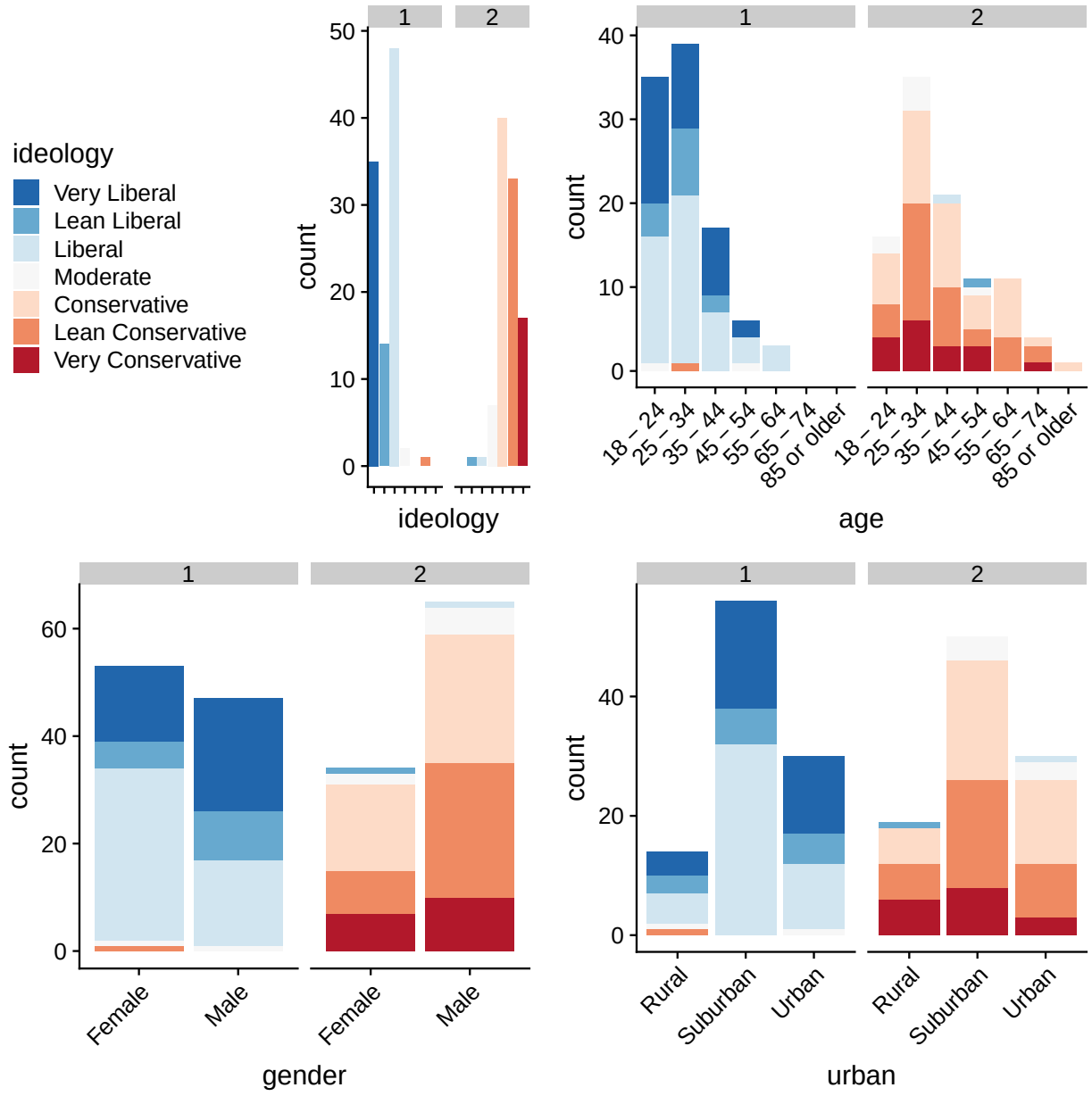

Figure 2: Demographics

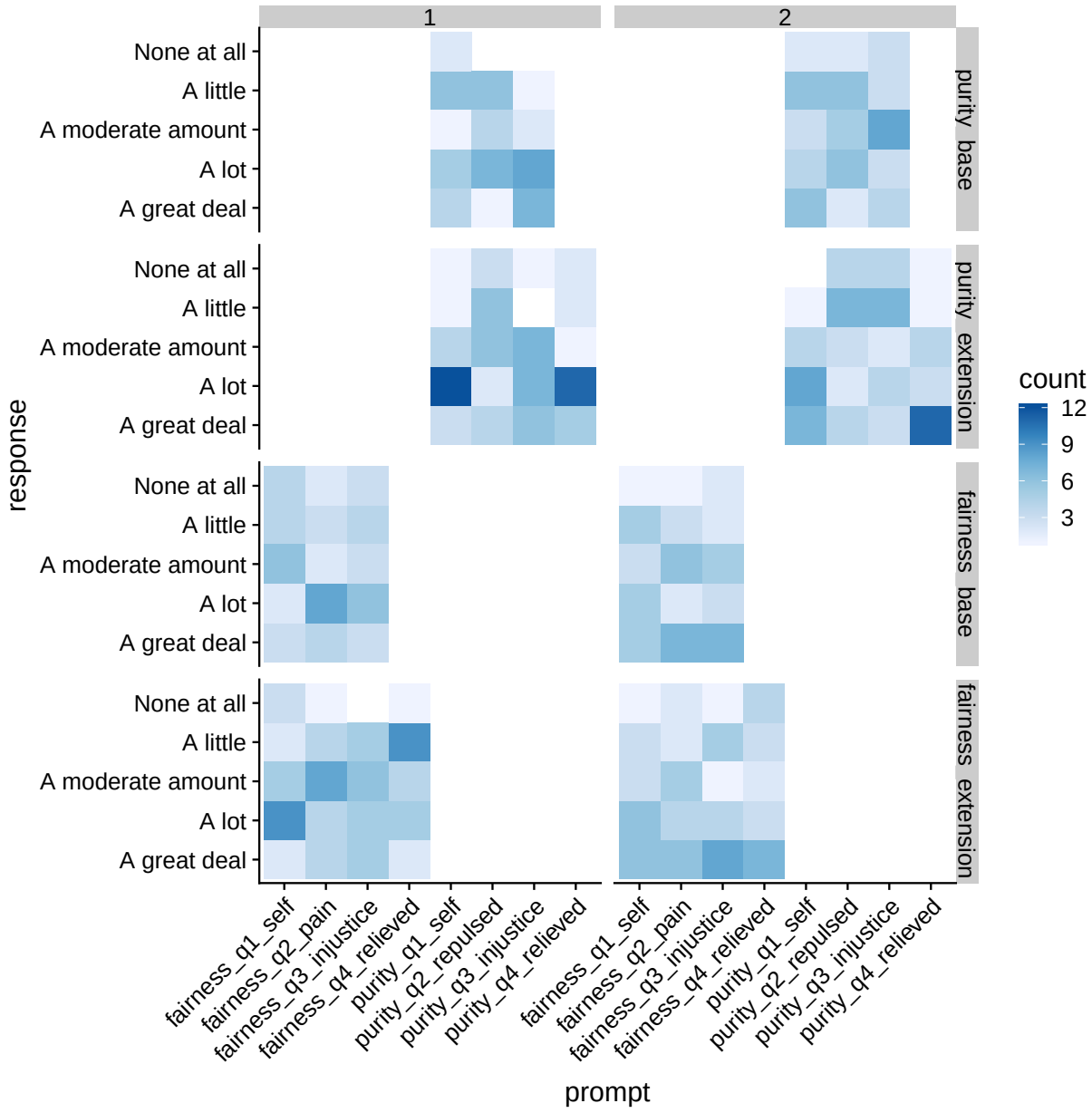

Figure 3: Reactions

```r
# Heat map of number UBI like
plot_ubi = ggplot(data = results_clean %>% group_by(ubi_familiarity, ideology) %>% summarise(ubi_number
       , aes(x = ubi_familiarity, y = ideology, fill = ubi_number_avg)) +
  geom_tile() +
  scale_fill_distiller(direction = 1) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1)
        , legend.position = "right")

grid.arrange(plot_familiarity, plot_ubi
             , nrow = 2)
```

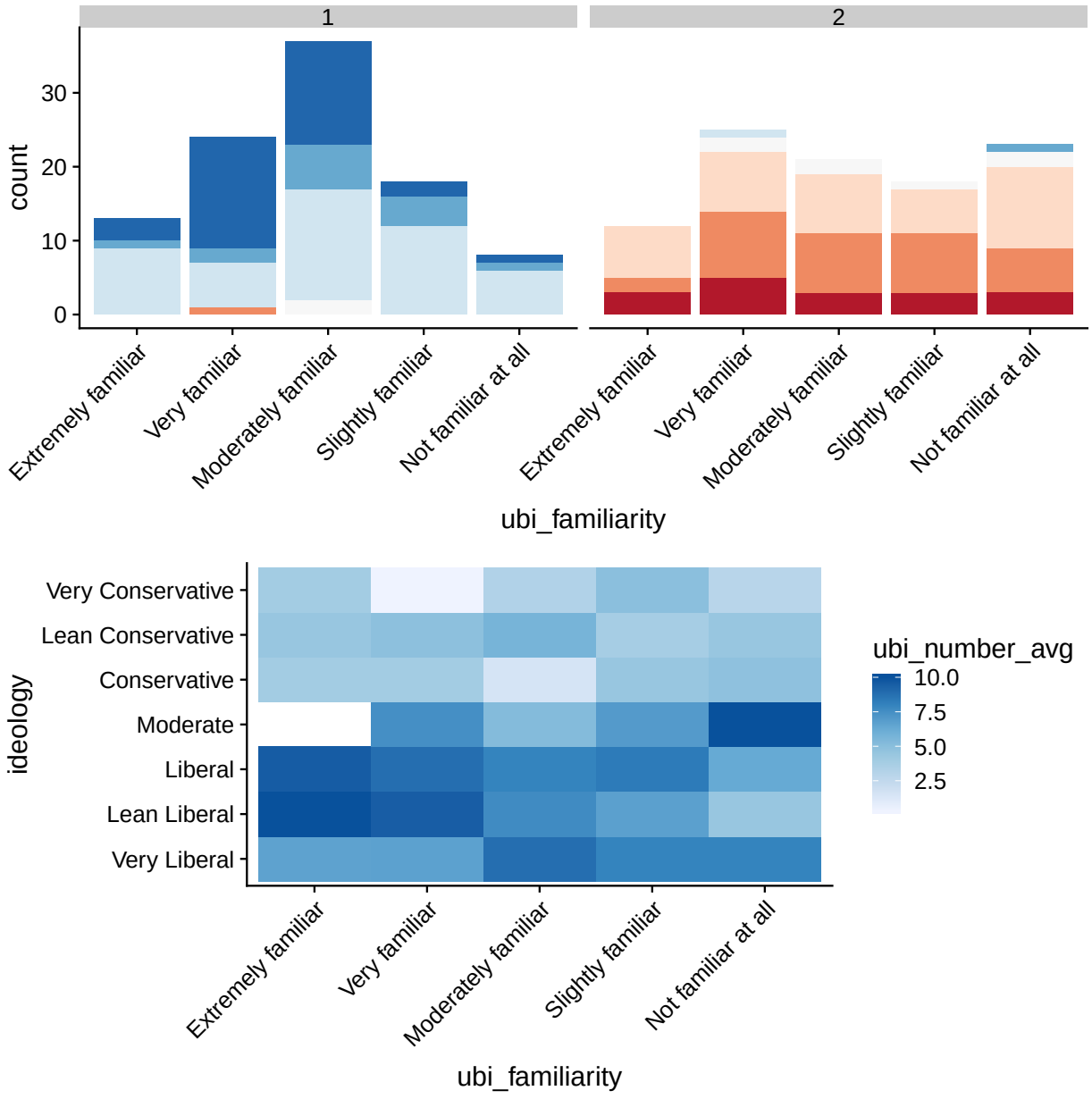

Figure 4: Outcomes

3 Methodology

3.1 Model 1

Independent variable

Dependent variable

Model specification

[[TBD]]. (see **??**)

```
my_lm_calcs = function(lm_in, clusters_in){
  # Robust
  vcov_robust = vcovHC(lm_in)
  se_robust = sqrt(diag(vcov_robust))
  # Cluster
  if(length(clusters_in) > 1){
    vcov_cluster = cluster.vcov(lm_in, clusters_in)
    se_cluster = sqrt(diag(vcov_cluster))
  } else {
    vcov_cluster = NA
    se_cluster = NA
  }
  # Output
  lm_out = list(lm = lm_in
                , vcov_robust = vcov_robust
                , se_robust = se_robust
                , vcov_cluster = vcov_cluster
                , se_cluster = se_cluster
  )
  return(lm_out)
}
```

```
# Summaries
all_data = data.table(results_full)
all_data[, ideology_bin := case_when(is.na(ideology) ~ "missing",
                                     ideology=="Very Liberal" ~ "liberal",
                                     ideology=="Lean Liberal" ~ "liberal",
                                     ideology=="Liberal" ~ "liberal",
                                     ideology=="Very Conservative" ~ "conservative",
                                     ideology=="Lean Conservative" ~ "conservative",
                                     ideology=="Conservative" ~ "conservative",
                                     TRUE ~ "moderate"), ]
all_data[, story := case_when(is.na(arm) ~ "missing",
                              arm=="control" ~ "",
                              arm=="purity_base" ~ "homeless",
                              arm=="purity_extension" ~ "homeless-cleaned",
                              arm=="fairness_base" ~ "bullying",
                              arm=="fairness_extension" ~ "bullying-addressed",
                              TRUE ~ "others"), ]
all_data[, FemaleReader := ifelse(gender!='Male', 1, 0), ]
all_data[, ubi_familiarity_dummy := ifelse(ubi_familiarity_bin!='yes', 1, 0), ]
all_data[, ubi := as.numeric(ubi_2), ]
all_data[ , .(ubi=mean(as.numeric(ubi_2)), .N), keyby=list(ideology_bin, story, FemaleReader) ]
```

```
##     ideology_bin              story FemaleReader       ubi  N
##  1: conservative                                0  4.642857 14
##  2: conservative                                1  0.500000  4
##  3: conservative           bullying             0  4.363636 11
##  4: conservative           bullying             1  1.857143  7
##  5: conservative bullying-addressed             0  4.500000 10
##  6: conservative bullying-addressed             1  4.750000  8
##  7: conservative           homeless             0  5.416667 12
##  8: conservative           homeless             1  1.714286  7
##  9: conservative   homeless-cleaned             0  4.666667 12
## 10: conservative   homeless-cleaned             1  3.166667  6
## 11:      liberal                                0  9.142857  7
## 12:      liberal                                1  7.500000 14
## 13:      liberal           bullying             0  7.700000 10
## 14:      liberal           bullying             1  8.000000 10
## 15:      liberal bullying-addressed             0  8.100000 10
## 16:      liberal bullying-addressed             1  6.111111  9
## 17:      liberal           homeless             0  7.909091 11
## 18:      liberal           homeless             1  9.428571  7
## 19:      liberal   homeless-cleaned             0  7.444444  9
## 20:      liberal   homeless-cleaned             1  8.666667 12
## 21:     moderate                                0  7.000000  1
## 22:     moderate                                1  8.000000  1
## 23:     moderate bullying-addressed             0  4.333333  3
## 24:     moderate           homeless             0  7.500000  2
## 25:     moderate   homeless-cleaned             1 10.000000  2
##     ideology_bin              story FemaleReader       ubi  N
```

```r
# augment model with results from coefteest and coefci using
# the supplied variance/covariance matrix
apply_robust_estimates = function(model, vcovmatrix) {
  model$robust.coeftest = coeftest(model, vcov. = vcovmatrix)
  model$robust.estimate = model$robust.coeftest[, 'Estimate']
  model$robust.std.error = model$robust.coeftest[, 'Std. Error']
  model$robust.statistic = model$robust.coeftest[, 't value']
  model$robust.p.value = model$robust.coeftest[, 'Pr(>|t|)']
  model$robust.coefci = coefci(model, vcov. = vcovmatrix)
  model$robust.ci.low = model$robust.coefci[, "2.5 %"]
  model$robust.ci.high = model$robust.coefci[, "97.5 %"]
  model
}
# liberals - homeless story
hom_lib_mod<-all_data[ ideology_bin=='liberal' & story != 'bullying' & story != 'bullying-addressed',  l
hom_lib_mod<-apply_robust_estimates(hom_lib_mod, vcovHC(hom_lib_mod))
# conservatives - homeless story
hom_con_mod<-all_data[ ideology_bin=='conservative' & story != 'bullying' & story != 'bullying-addresse
hom_con_mod<-apply_robust_estimates(hom_con_mod, vcovHC(hom_con_mod))
# liberals - jacket story
jac_lib_mod<-all_data[ ideology_bin=='liberal' & story != 'homeless' & story != 'homeless-cleaned',  lm
jac_lib_mod<-apply_robust_estimates(jac_lib_mod, vcovHC(jac_lib_mod))
# conservatives - jacket story
jac_con_mod<-all_data[ ideology_bin=='conservative' & story != 'homeless' & story != 'homeless-cleaned'
jac_con_mod<-apply_robust_estimates(jac_con_mod, vcovHC(jac_con_mod))
stargazer(hom_lib_mod, hom_con_mod,
```

```
          type = 'text',
          se = list(sqrt(diag(vcovHC(hom_lib_mod))),
                    sqrt(diag(vcovHC(hom_con_mod)))),
          header=F,
          report=('v*c*sp'),
          add.lines=list(c("Ideology", "Liberal", "Conservative")))
```

```
##
## ===============================================================================
##                                              Dependent variable:
##                                    ---------------------------------------
##                                                      ubi
##                                           (1)                 (2)
## -------------------------------------------------------------------------------
## storyhomeless                          -1.234**              0.774
##                                         (0.616)             (1.605)
##                                        p = 0.046           p = 0.630
##
## storyhomeless-cleaned                   -1.698*              0.024
##                                         (1.003)             (1.401)
##                                        p = 0.091           p = 0.987
##
## FemaleReader                           -1.643**            -4.143***
##                                         (0.813)             (1.038)
##                                        p = 0.044          p = 0.0001
##
## storyhomeless:FemaleReader             3.162***              0.440
##                                         (0.976)             (1.902)
##                                        p = 0.002           p = 0.817
##
## storyhomeless-cleaned:FemaleReader      2.865**              2.643
##                                         (1.271)             (1.774)
##                                        p = 0.025           p = 0.137
##
## Constant                               9.143***            4.643***
##                                         (0.436)             (0.983)
##                                        p = 0.000          p = 0.00001
##
## -------------------------------------------------------------------------------
## Ideology                                 Liberal          Conservative
## Observations                               60                 55
## R2                                        0.154               0.188
## Adjusted R2                               0.075               0.105
## Residual Std. Error                 1.815 (df = 54)     3.320 (df = 49)
## F Statistic                       1.962* (df = 5; 54) 2.267* (df = 5; 49)
## ===============================================================================
## Note:                                           *p<0.1; **p<0.05; ***p<0.01
```

```
stargazer(jac_lib_mod, jac_con_mod,
          type = 'text',
          se = list(sqrt(diag(vcovHC(jac_lib_mod))),
                    sqrt(diag(vcovHC(jac_con_mod)))),
          header=F,
```

```
          report=('v*c*sp'),
          add.lines=list(c("Ideology", "Liberal", "Conservative")))
```

```
##
## ================================================================================
##                                              Dependent variable:
##                                          -------------------------------------
##                                                          ubi
##                                                 (1)                 (2)
## --------------------------------------------------------------------------------
## storybullying                                  -1.443              -0.279
##                                               (1.097)             (1.446)
##                                              p = 0.189           p = 0.847
##
## storybullying-addressed                        -1.043*             -0.143
##                                               (0.612)             (1.673)
##                                              p = 0.089           p = 0.932
##
## FemaleReader                                   -1.643**            -4.143***
##                                               (0.813)             (1.038)
##                                              p = 0.044           p = 0.0001
##
## storybullying:FemaleReader                      1.943               1.636
##                                               (1.538)             (2.001)
##                                              p = 0.207           p = 0.414
##
## storybullying-addressed:FemaleReader           -0.346               4.393*
##                                               (1.218)             (2.286)
##                                              p = 0.777           p = 0.055
##
## Constant                                       9.143***            4.643***
##                                               (0.436)             (0.983)
##                                              p = 0.000           p = 0.00001
##
## --------------------------------------------------------------------------------
## Ideology                                        Liberal           Conservative
## Observations                                      60                  54
## R2                                              0.126               0.136
## Adjusted R2                                     0.045               0.046
## Residual Std. Error                      2.278 (df = 54)     3.546 (df = 48)
## F Statistic                             1.555 (df = 5; 54) 1.510 (df = 5; 48)
## ================================================================================
## Note:                                              *p<0.1; **p<0.05; ***p<0.01
```

```
# augment model with results from coefteest and coefci using
# the supplied variance/covariance matrix
# liberals - homeless story
hom_lib_mod_2<-all_data[ ideology_bin=='liberal' & story != 'bullying' & story != 'bullying-addressed',
hom_lib_mod_2<-apply_robust_estimates(hom_lib_mod_2, vcovHC(hom_lib_mod_2))
# conservatives - homeless story
hom_con_mod_2<-all_data[ ideology_bin=='conservative' & story != 'bullying' & story != 'bullying-addres
hom_con_mod_2<-apply_robust_estimates(hom_con_mod_2, vcovHC(hom_con_mod_2))
# liberals - jacket story
```

```r
jac_lib_mod_2<-all_data[ ideology_bin=='liberal' & story != 'homeless' & story != 'homeless-cleaned',  ]
jac_lib_mod_2<-apply_robust_estimates(jac_lib_mod_2, vcovHC(jac_lib_mod_2))
# conservatives - jacket story
jac_con_mod_2<-all_data[ ideology_bin=='conservative' & story != 'homeless' & story != 'homeless-cleaned
jac_con_mod_2<-apply_robust_estimates(jac_con_mod_2, vcovHC(jac_con_mod_2))
stargazer(hom_lib_mod_2, hom_con_mod_2,
          type = 'text',
          se = list(sqrt(diag(vcovHC(hom_lib_mod_2))),
                    sqrt(diag(vcovHC(hom_con_mod_2)))),
          header=F,
          report=('v*c*sp'),
          add.lines=list(c("Ideology", "Liberal", "Conservative")))
```

```
##
## ================================================================================
##                                                  Dependent variable:
##                                              -----------------------------------
##                                                           ubi
##                                                  (1)              (2)
## --------------------------------------------------------------------------------
## storyhomeless                                    0.452            0.330
##                                                 (0.600)          (1.282)
##                                                p = 0.451        p = 0.797
##
## storyhomeless-cleaned                            0.095            0.444
##                                                 (0.662)          (1.138)
##                                                p = 0.886        p = 0.697
##
## ubi_familiarity_dummy
##
##
##
## storyhomeless:ubi_familiarity_dummy
##
##
##
## storyhomeless-cleaned:ubi_familiarity_dummy
##
##
##
## Constant                                        8.048***         3.722***
##                                                 (0.497)          (0.868)
##                                                p = 0.000       p = 0.00002
##
## --------------------------------------------------------------------------------
## Ideology                                         Liberal        Conservative
## Observations                                       60               55
## R2                                                0.010            0.003
## Adjusted R2                                       -0.024           -0.035
## Residual Std. Error                         1.910 (df = 57)  3.571 (df = 52)
## F Statistic                                0.296 (df = 2; 57) 0.075 (df = 2; 52)
## ================================================================================
## Note:                                                *p<0.1; **p<0.05; ***p<0.01
```

```
stargazer(jac_lib_mod_2, jac_con_mod_2,
          type = 'text',
          se = list(sqrt(diag(vcovHC(jac_lib_mod_2))),
                    sqrt(diag(vcovHC(jac_con_mod_2)))),
          header=F,
          report=('v*c*sp'),
          add.lines=list(c("Ideology", "Liberal", "Conservative")))
```

```
##
## ================================================================================
##                                                  Dependent variable:
##                                              ---------------------------
##                                                          ubi
##                                                   (1)           (2)
## --------------------------------------------------------------------------------
## storybullying                                    -0.198        -0.333
##                                                 (0.794)       (1.208)
##                                                p = 0.804     p = 0.783
##
## storybullying-addressed                          -0.890        0.889
##                                                 (0.691)       (1.289)
##                                                p = 0.198     p = 0.491
##
## ubi_familiarity_dummy
##
##
##
## storybullying:ubi_familiarity_dummy
##
##
##
## storybullying-addressed:ubi_familiarity_dummy
##
##
##
## Constant                                         8.048***      3.722***
##                                                 (0.497)       (0.868)
##                                                p = 0.000     p = 0.00002
##
## --------------------------------------------------------------------------------
## Ideology                                         Liberal      Conservative
## Observations                                       60             54
## R2                                               0.027          0.021
## Adjusted R2                                      -0.007         -0.018
## Residual Std. Error                        2.340 (df = 57)  3.663 (df = 51)
## F Statistic                               0.783 (df = 2; 57) 0.536 (df = 2; 51)
## ================================================================================
## Note:                                              *p<0.1; **p<0.05; ***p<0.01
```

```
# Exploratory
results_armlibfair = results_clean %>% filter(ideology_bin == 'liberal' & grepl('fairness|control', arm
results_armlibpure = results_clean %>% filter(ideology_bin == 'liberal' & grepl('purity|control', arm))
results_armconfair = results_clean %>% filter(ideology_bin == 'conservative' & grepl('fairness|control'
```

```
results_armconpur = results_clean %>% filter(ideology_bin == 'conservative' & grepl('purity|control', a

model1_libfair = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level, data = results_armlibfair), clusters_in
model1_libpure = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level, data = results_armlibpure), clusters_in
model1_confair = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level, data = results_armconfair) , clusters_i
model1_conpure = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level, data = results_armconpur), clusters_in =

stargazer(model1_libfair$lm, model1_libpure$lm
          , model1_confair$lm, model1_conpure$lm
          , type = stargazer_type, header = F
          , se = list(model1_libfair$se_robust, model1_libpure$se_robust
                      , model1_confair$se_robust, model1_conpure$se_robust)
          , title = "Moral Foundations Prelim Regression Specifications"
          , column.labels = c("Lib + Fair", "Lib + Purity"
                              , "Con + Fair", "Con + Purity")
          , notes = "HC Robust Standard Errors"
          , report = ('v*c*sp')
)
```

Table 1: Moral Foundations Prelim Regression Specifications

	Dependent variable:			
	ubi_number			
	Lib + Fair	Lib + Purity	Con + Fair	Con + Purity
	(1)	(2)	(3)	(4)
arm_levelbase	−0.198	0.452	−0.333	0.330
	(0.794)	(0.600)	(1.208)	(1.282)
	p = 0.804	p = 0.451	p = 0.783	p = 0.797
arm_levelextension	−0.890	0.095	0.889	0.444
	(0.691)	(0.662)	(1.289)	(1.138)
	p = 0.198	p = 0.886	p = 0.491	p = 0.697
Constant	8.048***	8.048***	3.722***	3.722***
	(0.497)	(0.497)	(0.868)	(0.868)
	p = 0.000	p = 0.000	p = 0.00002	p = 0.00002
Observations	60	60	54	55
R^2	0.027	0.010	0.021	0.003
Adjusted R^2	−0.007	−0.024	−0.018	−0.035
Residual Std. Error	2.340 (df = 57)	1.910 (df = 57)	3.663 (df = 51)	3.571 (df = 52)
F Statistic	0.783 (df = 2; 57)	0.296 (df = 2; 57)	0.536 (df = 2; 51)	0.075 (df = 2; 52)
Note:				*p<0.1; **p<0.05; ***p<0.01
				HC Robust Standard Errors

```
par(mfrow=c(2,2))
which_in = 1
plot (model1_libfair$lm, which = which_in)
plot (model1_libpure$lm, which = which_in)
plot (model1_confair$lm, which = which_in)
```

```r
plot (model1_conpure$lm, which = which_in)
```

```r
arm_plot_df = function(model_in, group_in){
  baseline_val = model_in$lm$coefficients[1]

  arm_plot_df = data.frame(group = rep(group_in, 3)
                           , arm = c("control", "base", "extension")
                           , coef = model_in$lm$coefficients
                           , se = model_in$se_robust
  ) %>%
    mutate(baseline = baseline_val
           , ubi = case_when(arm == "control" ~ coef
                             , TRUE ~ coef + baseline))

  return(arm_plot_df)
}

arm_plot_libpure = arm_plot_df(model_in = model1_libpure, group_in = "liberal_pure")
arm_plot_libfair = arm_plot_df(model_in = model1_libfair, group_in = "liberal_fair")
arm_plot_conpure = arm_plot_df(model_in = model1_conpure, group_in = "conservative_pure")
arm_plot_confair = arm_plot_df(model_in = model1_confair, group_in = "conservative_fair")

con_delta_plot = ggplot() +
  geom_point(data = arm_plot_conpure, aes(x = baseline, y = ubi, shape = group, color = arm)) +
  geom_point(data = arm_plot_confair, aes(x = baseline, y = ubi, shape = group, color = arm)) +
  geom_abline(slope = 1, intercept = 0)

lib_delta_plot = ggplot() +
  geom_point(data = arm_plot_libpure, aes(x = baseline, y = ubi, shape = group, color = arm)) +
  geom_point(data = arm_plot_libfair, aes(x = baseline, y = ubi, shape = group, color = arm)) +
  geom_abline(slope = 1, intercept = 0)

grid.arrange(con_delta_plot, lib_delta_plot
             , nrow = 2)
```

```r
model1_libfair_gender = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level*gender, data = results_armlibfair)
model1_libpure_gender = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level*gender, data = results_armlibpure)
model1_confair_gender = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level*gender, data = results_armconfair)
model1_conpure_gender = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level*gender, data = results_armconpur)

stargazer(model1_libfair_gender$lm, model1_libpure_gender$lm
          , model1_confair_gender$lm, model1_conpure_gender$lm
          , type = stargazer_type, header = F
          , se = list(model1_libfair_gender$se_robust, model1_libpure_gender$se_robust
                      , model1_confair_gender$se_robust, model1_conpure_gender$se_robust)
          , title = "Moral Foundations Prelim Regression Specifications"
          , column.labels = c("Lib + Fair", "Lib + Purity"
                              , "Con + Fair", "Con + Purity")
          , notes = "HC Robust Standard Errors"
          , report = ('v*c*sp')
)
```

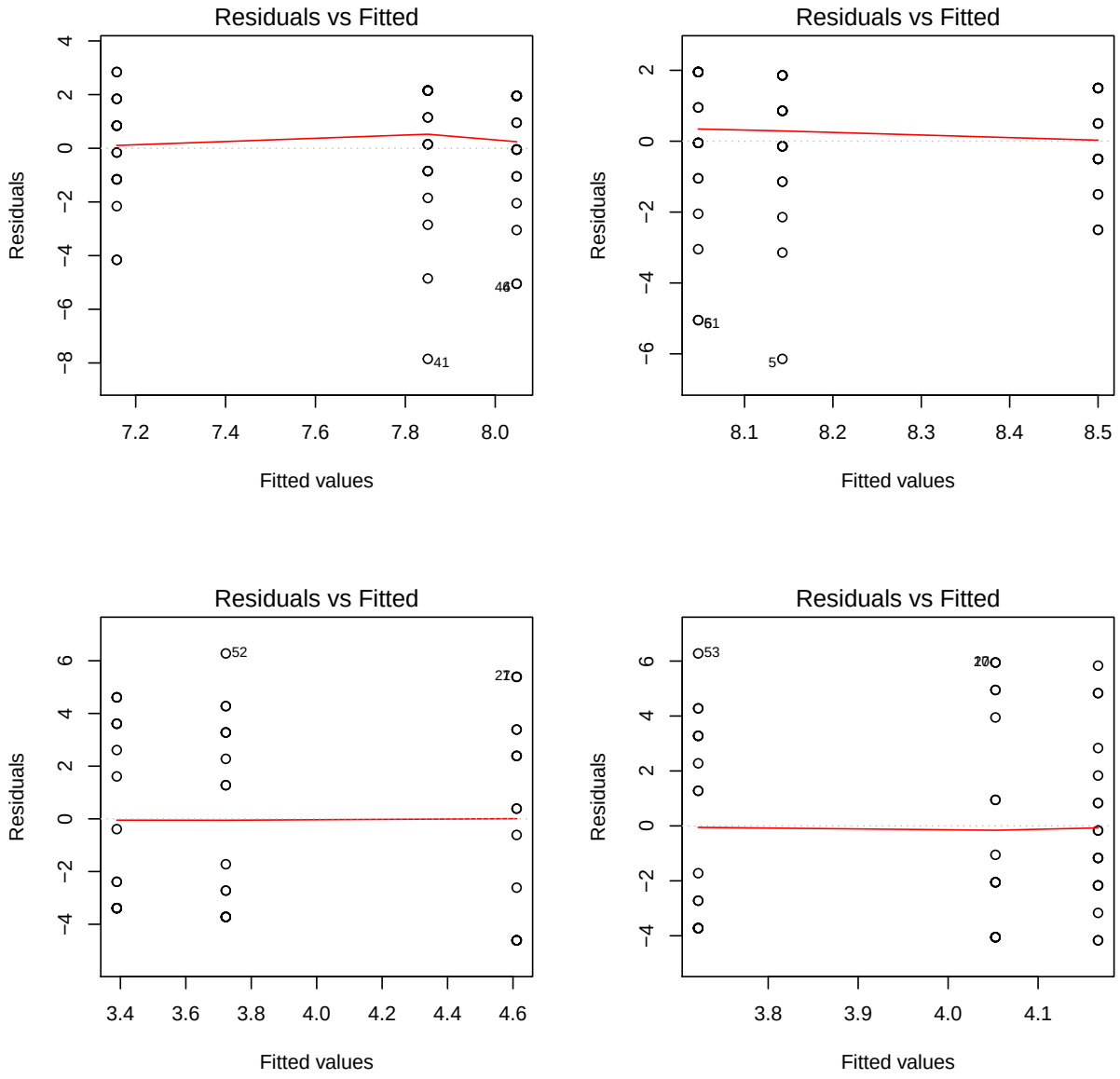

Figure 5: Model 1 Arms 1-4 - Residuals vs. Fitted

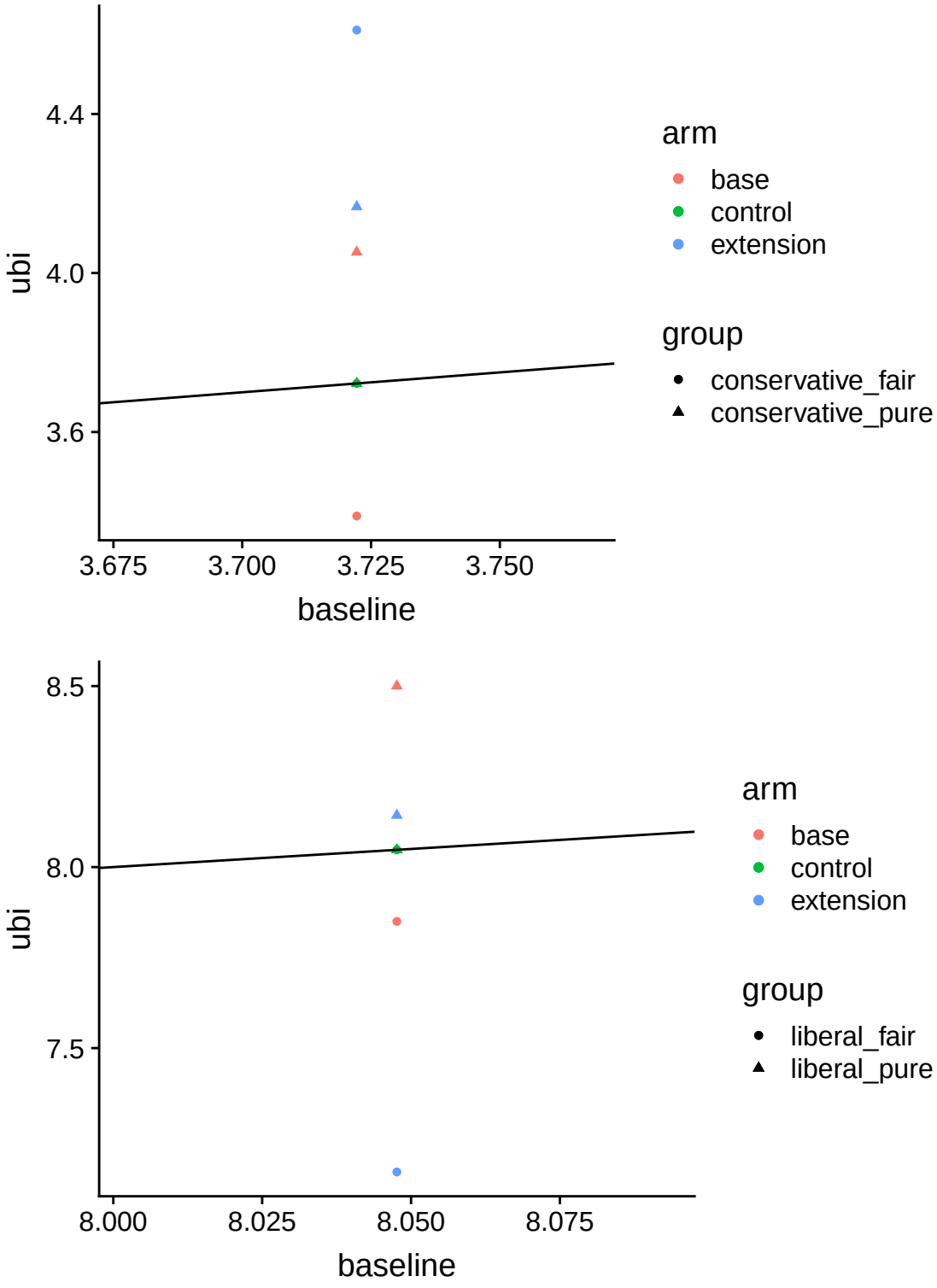

Figure 6: Model 1 Arms 1-4 - Coefficients

Table 2: Moral Foundations Prelim Regression Specifications

	Dependent variable:			
	ubi_number			
	Lib + Fair	Lib + Purity	Con + Fair	Con + Purity
	(1)	(2)	(3)	(4)
arm_levelbase	0.500	1.929**	1.357	1.214
	(1.078)	(0.757)	(1.383)	(1.020)
	p = 0.643	p = 0.011	p = 0.327	p = 0.234
arm_levelextension	−1.389	1.167	4.250***	2.667**
	(1.053)	(0.780)	(1.558)	(1.088)
	p = 0.188	p = 0.135	p = 0.007	p = 0.015
genderMale	1.643**	1.643**	4.143***	4.143***
	(0.813)	(0.813)	(1.038)	(1.038)
	p = 0.044	p = 0.044	p = 0.0001	p = 0.0001
arm_levelbase:genderMale	−1.943	−3.162***	−1.636	−0.440
	(1.538)	(0.976)	(2.001)	(1.902)
	p = 0.207	p = 0.002	p = 0.414	p = 0.817
arm_levelextension:genderMale	0.346	−2.865**	−4.393*	−2.643
	(1.218)	(1.271)	(2.286)	(1.774)
	p = 0.777	p = 0.025	p = 0.055	p = 0.137
Constant	7.500***	7.500***	0.500	0.500
	(0.686)	(0.686)	(0.333)	(0.333)
	p = 0.000	p = 0.000	p = 0.134	p = 0.134
Observations	60	60	54	55
R^2	0.126	0.154	0.136	0.188
Adjusted R^2	0.045	0.075	0.046	0.105
Residual Std. Error	2.278 (df = 54)	1.815 (df = 54)	3.546 (df = 48)	3.320 (df = 49)
F Statistic	1.555 (df = 5; 54)	1.962* (df = 5; 54)	1.510 (df = 5; 48)	2.267* (df = 5; 49)

Note: *p<0.1; **p<0.05; ***p<0.01
HC Robust Standard Errors

```
model1_libfair_familiarity = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level+ubi_familiarity_bin, data = i
model1_libpure_familiarity = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level+ubi_familiarity_bin, data = i
model1_confair_familiarity = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level+ubi_familiarity_bin, data = i
model1_conpure_familiarity = my_lm_calcs(lm_in = lm(ubi_number ~ arm_level+ubi_familiarity_bin, data = i

stargazer(model1_libfair_familiarity$lm, model1_libpure_familiarity$lm
          , model1_confair_familiarity$lm, model1_conpure_familiarity$lm
          , type = stargazer_type, header = F
          , se = list(model1_libfair_familiarity$se_robust, model1_libpure_familiarity$se_robust
                      , model1_confair_familiarity$se_robust, model1_conpure_familiarity$se_robust)
          , title = "Moral Foundations Prelim Regression Specifications"
          , column.labels = c("Lib + Fair", "Lib + Purity"
                              , "Con + Fair", "Con + Purity")
          , notes = "HC Robust Standard Errors"
          , report = ('v*c*sp')
)
```

Table 3: Moral Foundations Prelim Regression Specifications

	Dependent variable:			
	ubi_number			
	Lib + Fair	Lib + Purity	Con + Fair	Con + Purity
	(1)	(2)	(3)	(4)
arm_levelbase	−0.429	0.294	−0.281	0.424
	(0.759)	(0.584)	(1.202)	(1.340)
	p = 0.572	p = 0.616	p = 0.816	p = 0.752
arm_levelextension	−1.115*	0.095	0.889	0.475
	(0.674)	(0.641)	(1.322)	(1.174)
	p = 0.099	p = 0.882	p = 0.502	p = 0.686
ubi_familiarity_bin	2.495*	1.819*	−0.946	−0.542
	(1.486)	(0.992)	(1.215)	(1.510)
	p = 0.094	p = 0.067	p = 0.437	p = 0.720
Constant	5.909***	6.489***	4.406***	4.114***
	(1.525)	(1.113)	(1.302)	(1.481)
	p = 0.0002	p = 0.000	p = 0.001	p = 0.006
Observations	60	60	54	55
R^2	0.114	0.106	0.034	0.007
Adjusted R^2	0.066	0.058	−0.024	−0.052
Residual Std. Error	2.253 (df = 56)	1.832 (df = 56)	3.674 (df = 50)	3.599 (df = 51)
F Statistic	2.390* (df = 3; 56)	2.215* (df = 3; 56)	0.583 (df = 3; 50)	0.114 (df = 3; 51)
Note:				*p<0.1; **p<0.05; ***p<0.01 HC Robust Standard Errors

[[Example Table]]

Model	Specification	Interpretation	Figure
Model 1	*ubinumber~armlevel*	$\Delta armlevel = \beta_1 \Delta ubinumber$	**??**

```
# Stargazer
```

4 Results

[[TBD]]

5 Conclusion

[[TBD]]

6 Discussion

[[TBD]]

6.1 Limitations

[[TBD]]

7 Technical Appendix

7.1 Data Dictionary

Variable Name	Variable	Values	Source	Notes
prolific_pid				
panel				
arm				
node				
arm_level				
ideology				
ideology_bin				
age				
gender				
urban				
employment_status				
student_status				
purity_q1_self				
purity_q2_repulsed				
purity_q3_injustice				
purity_q4_relieved				
fairness_q1_self				
fairness_q2_pain				
fairness_q3_injustice				
fairness_q4_relieved				
open_text_reaction				
ubi_number	UBI Number	Integer 0-10		
ubi_group				
ubi_familiarity				
ubi_familiarity_bin				

7.2 Exploratory Data Analysis

Additional steps taken not included in the body of the report

[[TBD]]