Social Inclusion Analysis

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9/16/2021

```
dat <- read_csv("~/urbanplanning/preliminary_data.csv")
```

```
## Rows: 169989 Columns: 26
```

```
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr  (9): education, gender, ethnicity, marriage, diabete_hypertension, rece...
## dbl (17): participant, like.current.city, natives.like.me, natives.lookdown....
```

```
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
dat$migration.type <- NA
dat$migration.type[dat$migration.self == 1] <- "self"
dat$migration.type[dat$migration.fellows == 1] <- "fellows"
dat$migration.type[dat$migration.relatives == 1] <- "relatives"

col_names <- c("ethnicity","marriage","diabete_hypertension","group","recent_disease","insuranced","gend
dat[,col_names] <- lapply(dat[,col_names] , factor)

dat$money.left <- dat$income - dat$expence
dat$participant <- as.character(dat$participant)

dat$health <- as.numeric(dat$health)*1000
```

```
head(dat)
```

```
## # A tibble: 6 x 28
##   participant like.current.city natives.like.me natives.lookdow~ native.customs.~
##   <chr>                   <dbl>           <dbl>            <dbl>            <dbl>
## 1 0                           1              -1                1               -1
## 2 1                           2               1                1               -1
## 3 2                           2               1                1                1
## 4 3                           1               1               -1               -1
## 5 4                           1               1               -2                1
## 6 5                           2               1               -2                2
## # ... with 23 more variables: i.am.native <dbl>, income <dbl>, education <chr>,
## #   gender <fct>, ethnicity <fct>, marriage <fct>, worked_before5.1 <fct>,
## #   diabete_hypertension <fct>, recent_disease <fct>, group <fct>,
## #   participated_in_group_activity <dbl>, insuranced <fct>,
## #   migration.self <dbl>, migration.relatives <dbl>, migration.fellows <dbl>,
## #   health <dbl>, migration_scale <chr>, expence <dbl>, job <chr>,
## #   willing.to.movein <dbl>, willing.to.stay <dbl>, migration.type <chr>, ...
```

```
dat$natives_inclusion <- dat$natives.like.me-dat$natives.lookdown.me
dat$city_inclusion <- dat$like.current.city-dat$native.customs.better+dat$i.am.native
dat$tendency.livehere <- dat$willing.to.movein + dat$willing.to.stay
dat$migration.companionship <- - dat$migration.self + dat$migration.relatives + dat$migration.fellows
# dat$loneliness.level <- (dat$loneliness.level-min(dat$loneliness.level, na.rm=TRUE))/(max(dat$lonelin

dat
```

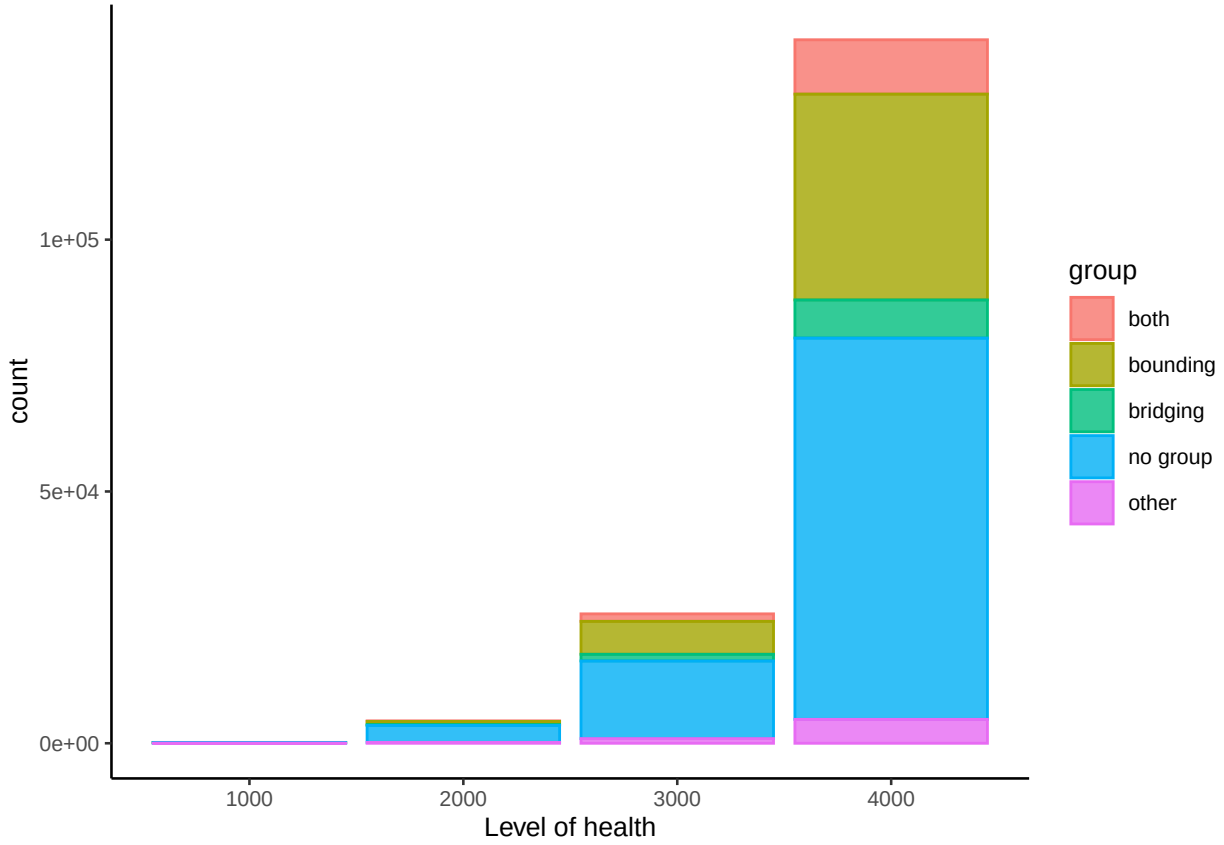
```
## # A tibble: 169,989 x 32
##    participant like.current.city natives.like.me natives.lookdown.me
##    <chr>                   <dbl>           <dbl>               <dbl>
##  1 0                           1              -1                   1
##  2 1                           2               1                   1
##  3 2                           2               1                   1
##  4 3                           1               1                  -1
##  5 4                           1               1                  -2
##  6 5                           2               1                  -2
##  7 6                           1               1                  -2
##  8 7                           1               1                  -2
##  9 8                           2               1                  -1
## 10 9                           2               2                  -2
## # ... with 169,979 more rows, and 28 more variables:
## #   native.customs.better <dbl>, i.am.native <dbl>, income <dbl>,
## #   education <chr>, gender <fct>, ethnicity <fct>, marriage <fct>,
## #   worked_before5.1 <fct>, diabete_hypertension <fct>, recent_disease <fct>,
## #   group <fct>, participated_in_group_activity <dbl>, insuranced <fct>,
## #   migration.self <dbl>, migration.relatives <dbl>, migration.fellows <dbl>,
## #   health <dbl>, migration_scale <chr>, expence <dbl>, job <chr>, ...
```

```
## regroup education
dat$education.group <- NA
dat$education.group[dat$education == 0] <- "0"
dat$education.group[(dat$education == 1) || (dat$education == 2) ] <- "1, 2"
dat$education.group[dat$education == 3] <- "3"
dat$education.group[(dat$education == 4) || (dat$education == 5)] <- "4, 5"
dat$education.group[dat$education == 6] <- "6"
```

```
## regroup ethnicity
dat$ethnicity.group <- "other"
dat$ethnicity.group[dat$ethnicity == 1] <- "han"
```

```
cbPalette <- c("#e61212", "#ffb300", "#22ff00", "#0015ff", "#00fbff")

p1 <- ggplot(dat, aes(health, colour = group, fill=group)) +
      geom_bar(alpha=0.8) +
      labs(
           x = "Level of health",
           colour = "group") +
      theme_classic(base_size = 10)
p1
```




```
m0 <- lmer(health ~ group + like.current.city + natives.like.me + natives.lookdown.me + native.customs.l
           data=dat)
```

```
## boundary (singular) fit: see ?isSingular
```

```
m1 <- lmer(health ~ group + natives_inclusion + city_inclusion + tendency.livehere + (1|participated_in_
           + (1|migration.type) + (1|money.left) + (1|job) + (1|migration_scale)+  (1| education) + (1
           data=dat)
```

```
## boundary (singular) fit: see ?isSingular
```

```
screenreg(c(m0,m1))
```

```
##
## ============================================================================
##                                                Model 1          Model 2
## ----------------------------------------------------------------------------
## (Intercept)                                    3642.59 ***      3665.86 ***
##                                                 (81.47)          (80.09)
## groupbounding                                    -3.21            -2.40
##                                                  (4.37)           (4.38)
## groupbridging                                  -21.20 ***       -21.05 ***
##                                                  (5.82)           (5.83)
## groupno group                                  -26.42 ***       -25.89 ***
##                                                  (4.33)           (4.33)
## groupother                                     -29.23 ***       -30.01 ***
##                                                  (7.03)           (7.05)
## like.current.city                                18.60 ***
##                                                  (1.80)
```

```
## natives.like.me                                        3.04
##                                                       (1.57)
## natives.lookdown.me                                  -14.81 ***
##                                                       (1.09)
## native.customs.better                                 -1.76 *
##                                                       (0.85)
## i.am.native                                           -2.06
##                                                       (1.06)
## willing.to.movein                                      2.80 *
##                                                       (1.32)
## willing.to.stay                                       25.97 ***
##                                                       (2.45)
## natives_inclusion                                                  11.45 ***
##                                                                    (0.80)
## city_inclusion                                                      2.51 ***
##                                                                    (0.60)
## tendency.livehere                                                   9.13 ***
##                                                                    (1.05)
## ------------------------------------------------------------------------------
## AIC                                              2070219.01       2064382.89
## BIC                                              2070455.37       2064579.79
## Log Likelihood                                  -1035085.51      -1032171.44
## Num. obs.                                         139831           139418
## Num. groups: money.left                             1088             1082
## Num. groups: education                                 7                7
## Num. groups: marriage                                  6                6
## Num. groups: migration.companionship                   4
## Num. groups: participated_in_group_activity            4                4
## Num. groups: recent_disease                            3                3
## Num. groups: migration_scale                           3                3
## Num. groups: job                                       3                3
## Num. groups: insuranced                                2                2
## Num. groups: ethnicity.group                           2                2
## Num. groups: gender                                    2                2
## Var: money.left (Intercept)                         3916.30          4169.99
## Var: education (Intercept)                          7513.81          7466.88
## Var: marriage (Intercept)                           7063.23          7169.16
## Var: migration.companionship (Intercept)             856.61
## Var: participated_in_group_activity (Intercept)      171.61           168.06
## Var: recent_disease (Intercept)                    11138.29         11060.88
## Var: migration_scale (Intercept)                     282.66           274.87
## Var: job (Intercept)                                 605.20           618.57
## Var: insuranced (Intercept)                           19.67            29.93
## Var: ethnicity.group (Intercept)                      38.97            36.05
## Var: gender (Intercept)                                0.00             0.00
## Var: Residual                                     157014.70        157312.69
## Num. groups: migration.type                                               3
## Var: migration.type (Intercept)                                          69.51
## ==============================================================================
## *** p < 0.001; ** p < 0.01; * p < 0.05
```

```
write_csv(dat,"processed_data.csv")
```