本調査の分析

加藤言人

2019 年 *12* 月 *26* 日

```
## Read Data
d <- readRDS("../data_public/main_data_v3.rds")
#d <- read_dta("../data_public/main_data_v1.dta", encoding="UTF-8")
nrow(d)
```

```
## [1] 1028
```

```
## Drop Respondents
d <- d[which(d$satisficer==0),] # Not Satisficers
d <- d[which(d$surveytime<=90),] # Took too long
nrow(d)
```

```
## [1] 994
```

```
dtmp <- d[complete.cases(d[,c("knall","fem","age","lvlen","ownh",
  "edu3","wk","mar","cld")]),]
nrow(dtmp)
```

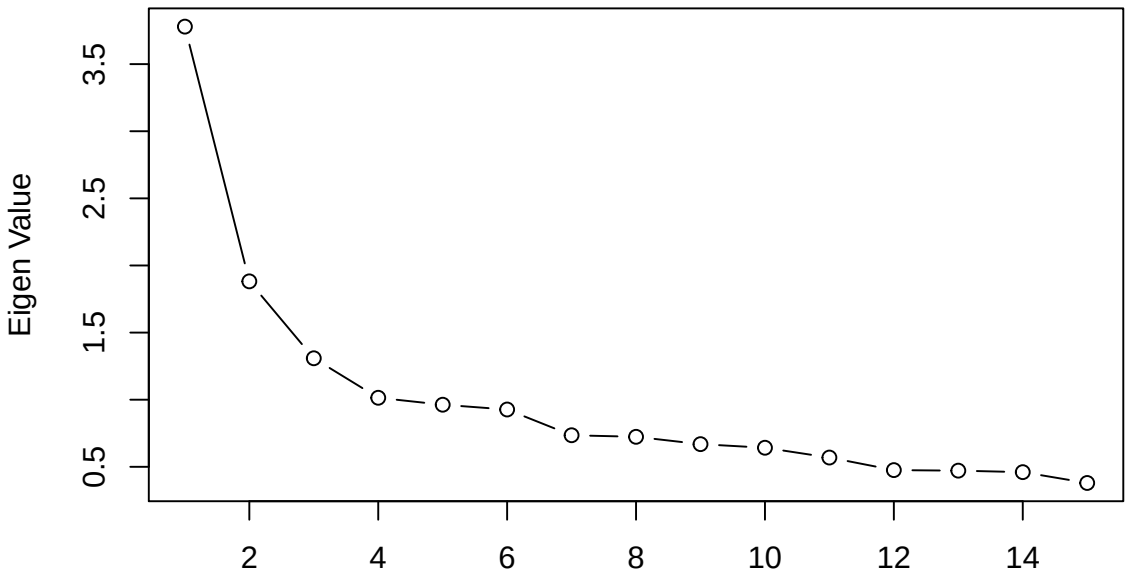
```
## [1] 927
```

争点イデオロギー指標の作成（因子分析）

```
# Issue Ideology
require(psych)
mydata <- d[,c("issue_1",
               "issue_2",
               "issue_3",
               "issue_4",
               "issue_5",
               "issue_6",
               "issue_7",
               "issue_8",
               "issue_9",
               "issue_10",
               "issue_11",
```

```
            "issue_12",
            "issue_13",
            "issue_14",
            "issue_15")]
mydata <- apply(mydata, 2, function(k){k[is.na(k)]<- 0; k})

# Scree-plot (Aiming at two vectors)
plot(eigen(cor(mydata))$values, type="b",
    ylab="Eigen Value",xlab="")
```



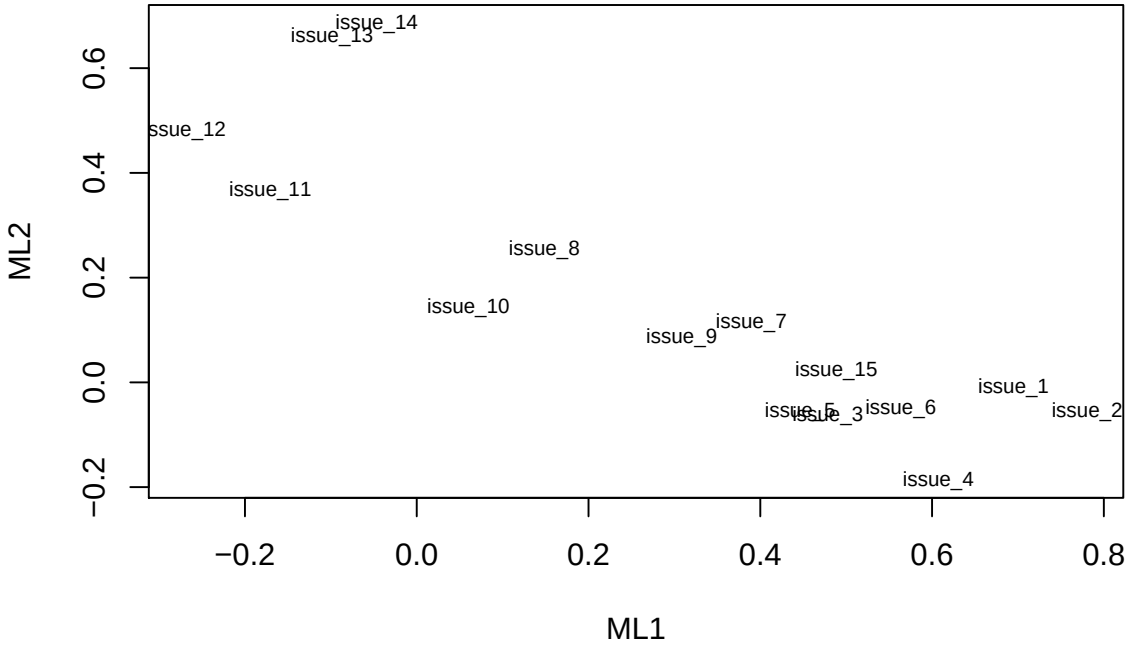

```
# with promax rotation (two factors)
fit <- fa(mydata, 2, fm="ml",
        rotate="promax",
        scores="Bartlett")
print(fit, digits=3, cutoff=.1, sort=TRUE)
```

```
## Factor Analysis using method =  ml
## Call: fa(r = mydata, nfactors = 2, rotate = "promax", scores = "Bartlett",
##     fm = "ml")
## Standardized loadings (pattern matrix) based upon correlation matrix
```

```
##          item    ML1    ML2     h2    u2  com
## issue_2     2  0.781 -0.054 0.6237 0.376 1.01
## issue_1     1  0.695 -0.009 0.4846 0.515 1.00
## issue_4     4  0.607 -0.186 0.4339 0.566 1.19
## issue_6     6  0.564 -0.049 0.3276 0.672 1.02
## issue_15   15  0.488  0.023 0.2361 0.764 1.00
## issue_3     3  0.479 -0.062 0.2411 0.759 1.03
## issue_5     5  0.447 -0.055 0.2091 0.791 1.03
## issue_7     7  0.390  0.116 0.1530 0.847 1.18
## issue_9     9  0.309  0.087 0.0955 0.905 1.16
## issue_14   14 -0.047  0.686 0.4811 0.519 1.01
## issue_13   13 -0.098  0.661 0.4639 0.536 1.04
## issue_12   12 -0.270  0.481 0.3398 0.660 1.57
## issue_11   11 -0.170  0.367 0.1809 0.819 1.41
## issue_8     8  0.149  0.254 0.0765 0.923 1.61
## issue_10   10  0.060  0.144 0.0220 0.978 1.34
##
##                        ML1   ML2
## SS loadings           2.887 1.482
## Proportion Var        0.192 0.099
## Cumulative Var        0.192 0.291
## Proportion Explained  0.661 0.339
## Cumulative Proportion 0.661 1.000
##
##  With factor correlations of
##       ML1    ML2
## ML1  1.000 -0.136
## ML2 -0.136  1.000
##
## Mean item complexity =  1.2
## Test of the hypothesis that 2 factors are sufficient.
##
## The degrees of freedom for the null model are  105  and the objective function was  3.147 0.1 with Chi Square of  3107.102
## The degrees of freedom for the model are 76  and the objective function was  0.501
##  0.1
## The root mean square of the residuals (RMSR) is  0.054
## The df corrected root mean square of the residuals is  0.063
##  0.1
## The harmonic number of observations is  994 with the empirical chi square  609.035  with prob <  3.64e-84
##  0.1The total number of observations was  994  with Likelihood Chi Square =  494.178  with prob <  1.44e-62
```

```
##  0.1
## Tucker Lewis Index of factoring reliability =  0.8073
## RMSEA index =  0.0748  and the 90 % confidence intervals are  0.0683 0.0808 0.1
## BIC =  -30.354
## Fit based upon off diagonal values = 0.941
## Measures of factor score adequacy
##                                                 ML1   ML2
## Correlation of (regression) scores with factors   0.912 0.840
## Multiple R square of scores with factors          0.832 0.705
## Minimum correlation of possible factor scores     0.663 0.410
```

```
# plot factor 1 by factor 2
load <- fit$loadings[,1:2]
plot(load,type="n") # set up plot
text(load,labels=colnames(mydata),cex=.7) # add variable names
```




```
require(ggrepel)
load <- as.data.frame(load)
load$vn <- c(" 自衛隊の拡充",
          " 集団的自衛権の行使",
```

```
          "在日米軍の維持",
          "国防軍の組織",
          "憲法改正要件の緩和",
          "首相の公式靖国参拝",
          "財政出動の実施",
          "公共事業の実施",
          "TPP への参加",
          "増税で社会福祉充実",
          "移民受け入れの推進",
          "外国人参政権の付与",
          "夫婦別姓の合法化",
          "同性婚の合法化",
          "原発の再稼働")

p <-
  ggplot(load, aes(x=ML1,y=ML2)) +
  geom_hline(yintercept=0,color="gray30",linetype=2) +
  geom_vline(xintercept=0,color="gray30",linetype=2) +
  geom_point() +
  geom_text_repel(aes(label=vn)) +
  labs(title="争点態度イデオロギーの因子分析（因子負荷量）",
       x="外交安全保障イデオロギー（第 1 因子）",
       y="権利機会平等イデオロギー（第 2 因子）",
       caption="¥n※ 因子負荷量の推定にはプロマックス回転と最尤法を用いた．因子スコアは Bartlett 法を用いて算出した．") +
  theme_classic() +
  theme(plot.title=element_text(hjust=0.5),
        axis.text = element_text(size=10))
p
```

“‘ ## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, : ## conversion failure on ’ 譲ｳ蛻ｳ識滉ｼ壼ｸｳ遅峨う繝が繝ｺ繧ｮ繝ｼ育ｬｬ 2 蝗