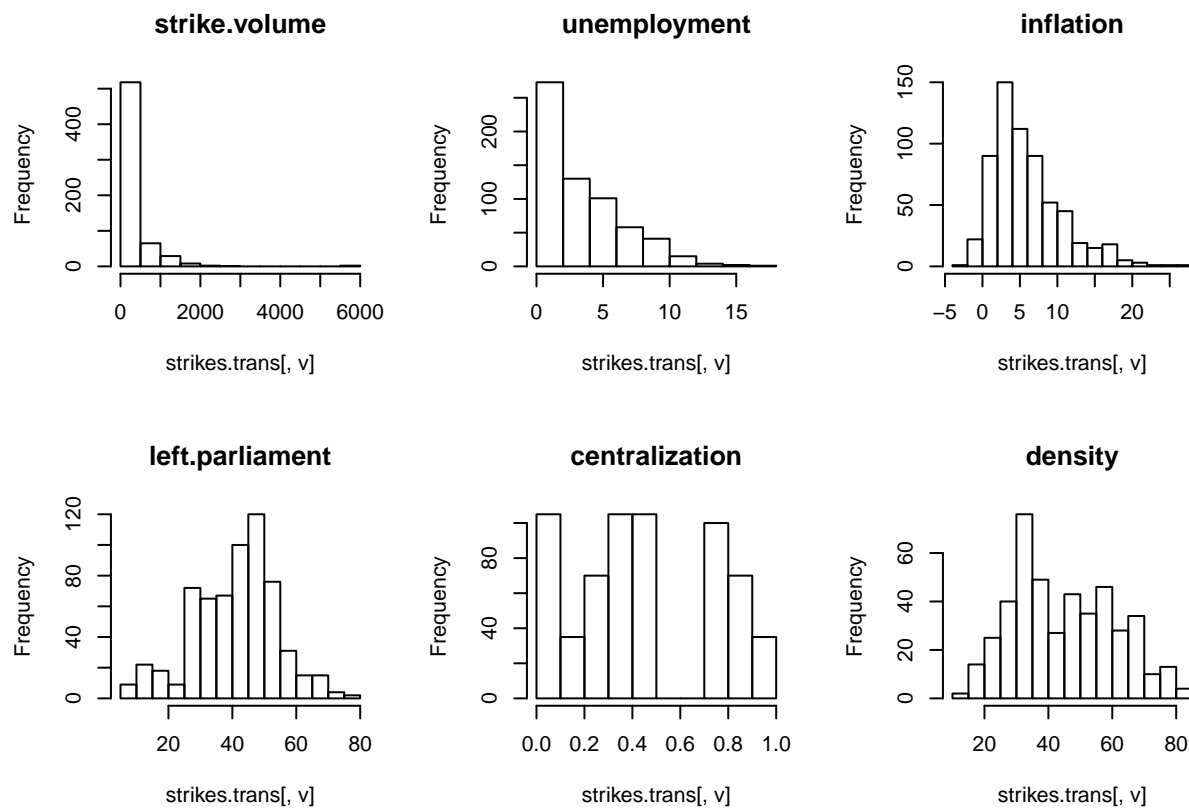# 36-402 Final Exam

Eu Jing Chua
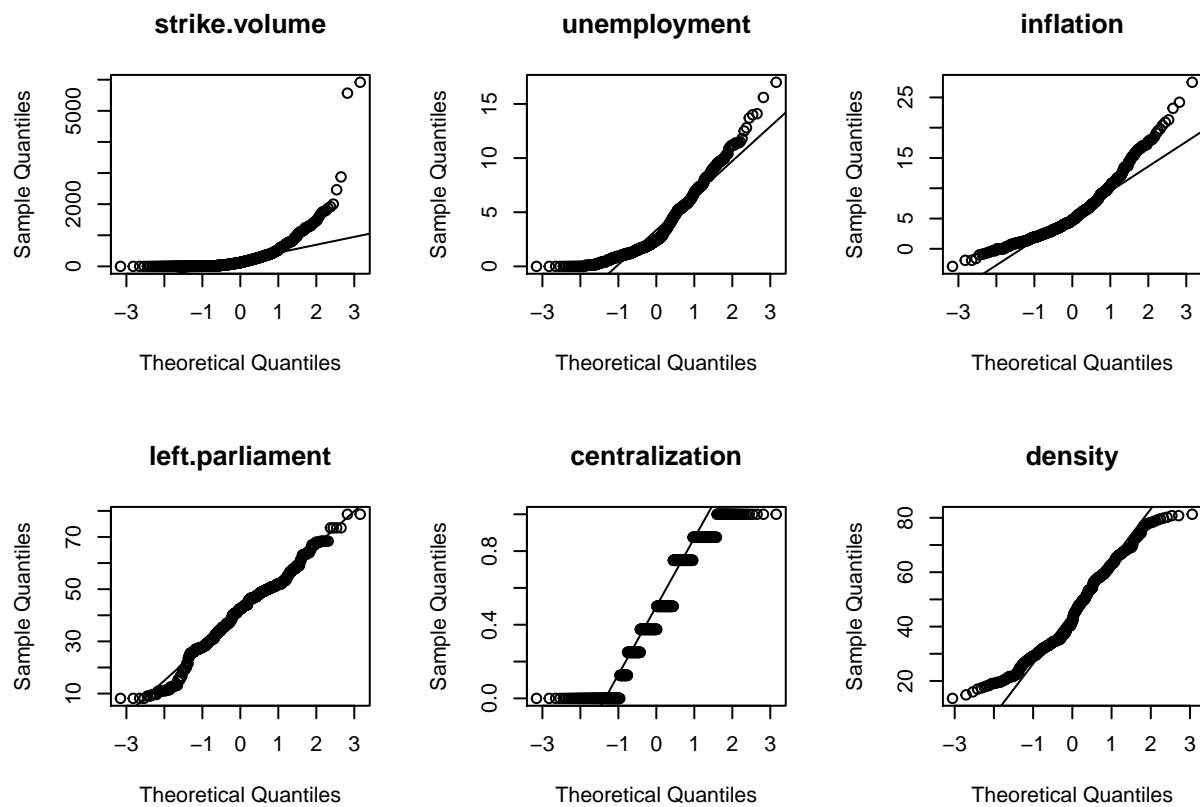*eujingc*

May 02, 2019

```r
library(knitr)
library(pcalg)
library(Rgraphviz)
```

```r
strikes <- read.csv("http://www.stat.cmu.edu/~cshalizi/uADA/19/exams/2/strikes.csv")
strikes.missing <- data.frame(strikes)
strikes.missing$density <- NULL
strikes.missing$density.missing <- as.numeric(is.na(strikes$density))
```

```r
strikes.trans <- data.frame(strikes)
# strikes.trans <- subset(strikes, year >= 1960)
# strikes.trans$strike.volume <- log(strikes$strike.volume + 1)
# strikes.trans$inflation <- sqrt(strikes$inflation)
# strikes.trans$unemployment <- sqrt(strikes$unemployment)
par(mfrow=c(2, 3))
vars <- colnames(strikes.trans[3:8])
for (v in vars) {
    hist(strikes.trans[, v], main = v)
}
```

strike.volume

unemployment

inflation

left.parliament

centralization

density


```r
for (v in vars) {
    qqnorm(strikes.trans[, v], main = v)
    qqline(strikes.trans[, v])
}
```

strike.volume

unemployment

inflation

left.parliament

centralization

density


```r
suffStat <- list(C=cor(strikes.trans[3:8], use="pairwise.complete.obs"),
                 n=nrow(strikes.trans))
pc.fit <- pc(suffStat, indepTest = gaussCItest, p = 6, alpha = 0.05)
plot(pc.fit, labels = colnames(strikes.trans[3:8]), main = "Inferred DAG for strikes")
```

Inferred DAG for strikes