[Example 14-2] Fixed Effect Model

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load("~/計量経済学演習/R data sets for 5e/wagepan.RData")
wagepan<-data

library(plm)

## Loading required package: Formula

wagepan.p <- pdata.frame(wagepan, index=c("nr","year") )
pdim(wagepan.p)

## Balanced Panel: n = 545, T = 8, N = 4360

# Estimate FE model
# We should omitt educ because it don't change over times but can include
 it as an interaction with factor of year.
# Because FE model enrtails within transformation , time constant vaiable
 will disappear through the calculation.(so we omitt variable "educ")
summary( plm(lwage~married+union+factor(year)*educ,
                                        data=wagepan.p, model="within") )

## Oneway (individual) effect Within Model
##
## Call:
## plm(formula = lwage ~ married + union + factor(year) * educ,
##     data = wagepan.p, model = "within")
##
## Balanced Panel: n = 545, T = 8, N = 4360
##
## Residuals:
##      Min.   1st Qu.    Median   3rd Qu.      Max.
## -4.152111 -0.125630  0.010897  0.160800  1.483401
##
## Coefficients:
##                          Estimate Std. Error t-value  Pr(>|t|)
## married                 0.0548205  0.0184126  2.9773  0.002926 **
## union                   0.0829785  0.0194461  4.2671 2.029e-05 ***
## factor(year)1981       -0.0224158  0.1458885 -0.1537  0.877893
## factor(year)1982       -0.0057611  0.1458558 -0.0395  0.968495
## factor(year)1983        0.0104297  0.1458579  0.0715  0.942999
## factor(year)1984        0.0843743  0.1458518  0.5785  0.562965
## factor(year)1985        0.0497253  0.1458602  0.3409  0.733190
## factor(year)1986        0.0656064  0.1458917  0.4497  0.652958
```

```
## factor(year)1987       0.0904448  0.1458505  0.6201  0.535216
## factor(year)1981:educ  0.0115854  0.0122625  0.9448  0.344827
## factor(year)1982:educ  0.0147905  0.0122635  1.2061  0.227872
## factor(year)1983:educ  0.0171182  0.0122633  1.3959  0.162830
## factor(year)1984:educ  0.0165839  0.0122657  1.3521  0.176437
## factor(year)1985:educ  0.0237085  0.0122738  1.9316  0.053479 .
## factor(year)1986:educ  0.0274123  0.0122740  2.2334  0.025583 *
## factor(year)1987:educ  0.0304332  0.0122723  2.4798  0.013188 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Total Sum of Squares:    572.05
## Residual Sum of Squares: 474.35
## R-Squared:      0.1708
## Adj. R-Squared: 0.048567
## F-statistic: 48.9069 on 16 and 3799 DF, p-value: < 2.22e-16
```