

Advanced Quantitative Methods

Lab 11: Multilevel and panel data

Johan A. Elkink
jos.elkink@ucd.ie

20 April 2017

1. Using the `asiabaro.dta` data file:

- Estimate a pooled model explaining `evaldemoc` by `evalcorrupt`.
- Estimate a country fixed effects model using dummy variables, including an intercept.
- Estimate a country fixed effects model using dummy variables, excluding the overall intercept.
- Estimate a country fixed effects model using demeaned variables.

```
mux <- apply(x, country, mean, na.rm = TRUE)
xdemeaned <- x - mux[country]
```

- Estimate a country random effects model.
- Estimate a country random coefficients model.

2. A famous example dataset is the Grunfeld data:

inv gross investment
value market value of firm
capital value of stock of equipment / plant
for 10 firms ($N = 10$) over 20 years ($T = 20$).

```
library(plm)
data("Grunfeld", package = "plm")
head(Grunfeld)
```

- Using `plm()`, estimate the pooled, unit fixed, time fixed, random unit effects models.
- Test the fixed and random effects specifications.
- Calculate panel-corrected standard errors (using the `pcse` package).
- Graphically inspect the regression results.

3. If there is time left, follow the tutorial here:

<https://www.jaredknowles.com/journal/2013/11/25/getting-started-with-mixed-effect-models-in-r>