Example 4-11

September 12, 2020

```r
[ ]: # install the following packages and library
     install.packages("plm")
     install.packages("pder")

     library("plm")
```

```r
[5]: ##--------------------------------Block 1--------------------------------

     #### Example 4-11 ####

     ## ----------------------------------------------------------------------
     data("HousePricesUS", package = "pder")
     php <- pdata.frame(HousePricesUS)

     ## ----------------------------------------------------------------------

     # comparing the two different test coefficients for
     # cross-sectional correlation
     cbind("rho"   = pcdtest(diff(log(php$price)), test = "rho")$statistic,
           "|rho|" = pcdtest(diff(log(php$price)), test = "absrho")$statistic)
```

	rho	|rho|
rho	0.3942212	0.4246933

```r
[6]: ##--------------------------------Block 2--------------------------------

     # create a correlation table to see the correlation between regions
     regions.names <- c("New Engl", "Mideast", "Southeast", "Great Lks",
                        "Plains", "Southwest", "Rocky Mnt", "Far West")
     corr.table.hp <- cortab(diff(log(php$price)), grouping = php$region,
                             groupnames = regions.names)
     colnames(corr.table.hp) <- substr(rownames(corr.table.hp), 1, 5)
     round(corr.table.hp, 2)
```

	New E	Midea	South	Great	Plain	South	Rocky	Far W
New Engl	0.80	NA	NA	NA	NA	NA	NA	NA
Mideast	0.68	0.66	NA	NA	NA	NA	NA	NA
Southeast	0.40	0.35	0.81	NA	NA	NA	NA	NA
Great Lks	0.27	0.20	0.62	0.61	NA	NA	NA	NA
Plains	0.40	0.32	0.57	0.53	0.52	NA	NA	NA
Southwest	0.07	-0.05	0.28	0.39	0.35	0.52	NA	NA
Rocky Mnt	-0.03	-0.11	0.52	0.53	0.40	0.57	0.70	NA
Far West	0.13	0.17	0.52	0.42	0.29	0.31	0.46	0.57

[8]:
```
##---------------------------------Block 3---------------------------------

# testing for cross-sectional dependence using AR(2) model
pcdtest(diff(log(price)) ~ diff(lag(log(price))) + diff(lag(log(price), 2)),
        data = php)
```

Pesaran CD test for cross-sectional dependence in panels

data: diff(log(price)) ~ diff(lag(log(price))) + diff(lag(log(price),   2))
z = 59.009, p-value < 2.2e-16
alternative hypothesis: cross-sectional dependence