Example 4-10

September 12, 2020

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

     library("plm")
```

```
[3]: ##------------------------------Block 1------------------------------

     #### Example 4-10 ####

     ## ----------------------------------------------------------------
     data("RDSpillovers", package = "pder")

     # production function used in Eberhardt et al. (2013)
     fm.rds <- lny ~ lnl + lnk + lnrd

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

     # pairwise-correlations-based test.
     pcdtest(fm.rds, RDSpillovers)
```

```
Pesaran CD test for cross-sectional dependence in panels

data:  lny ~ lnl + lnk + lnrd
z = 28.612, p-value < 2.2e-16
alternative hypothesis: cross-sectional dependence
```

```
[4]: ##------------------------------Block 2------------------------------

     # if a different model specification is consistent, can use the residuals
     # to test instead
     rds.2fe <- plm(fm.rds, RDSpillovers, model = "within", effect = "twoways")
     pcdtest(rds.2fe)
```

```
Pesaran CD test for cross-sectional dependence in panels
```

```
data:  lny ~ lnl + lnk + lnrd
z = -1.4637, p-value = 0.1433
alternative hypothesis: cross-sectional dependence
```

[5]:
```
##--------------------------------Block 3--------------------------------

# comparing the two different test coefficients for
# cross-sectional correlation
cbind("rho"  = pcdtest(rds.2fe, test = "rho")$statistic,
      "|rho|"= pcdtest(rds.2fe, test = "absrho")$statistic)
```

	rho	|rho|
rho	-0.004879359	0.5020905