

Package ‘pder’

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Callbacks

Callbacks to Job Applications

Description

a pseudo-panel of 1518 resumes from 2014

number of observations : 6072

number of individual observations : 4

country : United States

package : binomial

JEL codes: E24, E32, J14, J22, J23, J64

Chapter : 08

Usage

data(Callbacks)

Format

A dataframe containing:

jobid the job index

unempdur unemployment duration in month

interim a dummy for interim experience

callback a dummy for call backs

old a dummy for age 57-58

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Farber, Henry S.; Silverman, Dan and Till von Wachter (2016) “Determinants of Callbacks to Job Applications: An Audit Study”, *American Economic Review*, **106(5)**, 314-318, doi: [10.1257/aer.p20161010](https://doi.org/10.1257/aer.p20161010) .

CoordFailure

How to Overcome Organization Failure in Organization

Description

a pseudo-panel of 240 individuals

number of observations : 7168

number of individual observations : 30

country : United States and Spain

package : ordinalpanelexpe

JEL codes: C92, D23

Chapter : 08

Usage

`data(CoordFailure)`

Format

A dataframe containing:

firm the firm index

id the individual index

period the period

place either Cleveland or Barcelona

bonus1 the bonus for the first block of 10 rounds
bonus2 the bonus for the second block of 10 rounds
bonus3 the bonus for the third block of 10 rounds
effort the level of effort of the employee

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Brandts, Jordi and David J. Cooper (2006) "A Change Would Do You Good... An Experimental Study on How to Overcome Coordination Failure in Organizations", *American Economic Review*, **96(3)**, 669-693, doi: [10.1257/aer.96.3.669](https://doi.org/10.1257/aer.96.3.669) .

DemocracyIncome

The Relation Between Democracy and Income

Description

5-yearly observations of 211 countries from 1950 to 2000

number of observations : 2321

number of time-series : 11

country : world

package : panel

JEL codes: D72, O47

Chapter : 02, 07

Usage

```
data(DemocracyIncome)
```

Format

A dataframe containing:

country country

year the starting year of the 5-years period

democracy democracy index

income the log of the gdp per capita

sample a dummy variable to select the subset used in the original article

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Daron Acemoglu, Simon Johnson, James A. Robinson and Pierre Yared (2008) "Income and Democracy", *American Economic Review*, **98(3)**, 808-842, doi: [10.1257/aer.98.3.808](https://doi.org/10.1257/aer.98.3.808) .

Examples

```
#### Example 7-1

## -----

## Not run:
data("DemocracyIncome", package = "pder")

## -----
data("DemocracyIncome", package="pder")
set.seed(1)
di2000 <- subset(DemocracyIncome, year == 2000,
                select = c("democracy", "income", "country"))
di2000 <- na.omit(di2000)
di2000$country <- as.character(di2000$country)
di2000$country[- c(2,5, 23, 16, 17, 22, 71, 125, 37, 43, 44,
                  79, 98, 105, 50, 120, 81, 129, 57, 58,99)] <- NA

if(requireNamespace("ggplot2")){
  library("ggplot2")
  ggplot(di2000, aes(income, democracy, label = country)) +
    geom_point(size = 0.4) +
    geom_text(aes(y= democracy + sample(0.03 * c(-1, 1),
                                       nrow(di2000), replace = TRUE)),
              size = 2) +
  theme(legend.text = element_text(size = 6),
        legend.title= element_text(size = 8),
        axis.title = element_text(size = 8),
        axis.text = element_text(size = 6))
}

## -----
library("plm")
pdim(DemocracyIncome)
head(DemocracyIncome, 4)

#### Example 7-2

## -----
mco <- plm(democracy ~ lag(democracy) + lag(income) + year - 1,
           DemocracyIncome, index = c("country", "year"),
           model = "pooling", subset = sample == 1)

## -----
mco <- plm(democracy ~ lag(democracy) + lag(income),
```

```

        DemocracyIncome, index = c("country", "year"),
        model = "within", effect = "time",
        subset = sample == 1)
coef(summary(mco))

#### Example 7-3

## -----
within <- update(mco, effect = "twoways")
coef(summary(within))

#### Example 7-4

## -----
ahsiao <- plm(diff(democracy) ~ lag(diff(democracy)) +
             lag(diff(income)) + year - 1 |
             lag(democracy, 2) + lag(income, 2) + year - 1,
             DemocracyIncome, index = c("country", "year"),
             model = "pooling", subset = sample == 1)
coef(summary(ahsiao))[1:2, ]

#### Example 7-5

## -----
diff1 <- pgmm(democracy ~ lag(democracy) + lag(income) |
             lag(democracy, 2:99) | lag(income, 2),
             DemocracyIncome, index=c("country", "year"),
             model="onestep", effect="twoways", subset = sample == 1)
coef(summary(diff1))

## -----
diff2 <- update(diff1, model = "twosteps")
coef(summary(diff2))

#### Example 7-7

## -----
sys2 <- pgmm(democracy ~ lag(democracy) + lag(income) |
             lag(democracy, 2:99) | lag(income, 2),
             DemocracyIncome, index = c("country", "year"),
             model = "twosteps", effect = "twoways",
             transformation = "ld")
coef(summary(sys2))

#### Example 7-8

## -----
sqrt(diag(vcov(diff2)))[1:2]

```

```
sqrt(diag(vcovHC(diff2)))[1:2]
```

```
#### Example 7-10
```

```
## -----
mtest(diff2, order = 2)
```

```
#### Example 7-9
```

```
## -----
sargan(diff2)
sargan(sys2)

## End(Not run)
```

DemocracyIncome25

The Relation Between Democracy and Income

Description

25-yearly observations of 25 countries from 1850 to 2000

number of observations : 175

number of time-series : 7

country : world

package : panel

JEL codes: D72, O47

Chapter : 02, 07

Usage

```
data(DemocracyIncome25)
```

Format

A dataframe containing:

country country

year the starting year of the 5-years period

democracy democracy index

income the log of the gdp per capita

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Daron Acemoglu, Simon Johnson, James A. Robinson and Pierre Yared (2008) "Income and Democracy", *American Economic Review*, **98(3)**, 808-842, doi: [10.1257/aer.98.3.808](https://doi.org/10.1257/aer.98.3.808) .

Examples

Example 2-7

```
## -----
library("plm")
data("DemocracyIncome25", package = "pder")
DI <- pdata.frame(DemocracyIncome25)
summary(lag(DI$income))
ercomp(democracy ~ lag(income), DI)
models <- c("within", "random", "pooling", "between")
sapply(models, function(x)
  coef(plm(democracy ~ lag(income), DI, model = x))["lag(income)"]])
```

Example 7-6

```
## -----
data("DemocracyIncome25", package = "pder")
pdim(DemocracyIncome25)

## -----
diff25 <- pgmm(democracy ~ lag(democracy) + lag(income) |
  lag(democracy, 2:99) + lag(income, 2:99),
  DemocracyIncome25, model = "twosteps")

## -----
diff25lim <- pgmm(democracy ~ lag(democracy) + lag(income) |
  lag(democracy, 2:4) + lag(income, 2:4),
  DemocracyIncome25, index=c("country", "year"),
  model="twosteps", effect="twoways", subset = sample == 1)
diff25coll <- pgmm(democracy ~ lag(democracy) + lag(income) |
  lag(democracy, 2:99) + lag(income, 2:99),
  DemocracyIncome25, index=c("country", "year"),
  model="twosteps", effect="twoways", subset = sample == 1,
  collapse = TRUE)
sapply(list(diff25, diff25lim, diff25coll), function(x) coef(x)[1:2])
```

Example 7-9

```
## -----
sapply(list(diff25, diff25lim, diff25coll),
  function(x) sargan(x)[["p.value"]])
```

Dialysis

Diffusion of Haemodialysis Technology

Description

yearly observations of 50 states from 1977 to 1990

number of observations : 700

number of time-series : 14

country : United States

package : panel

JEL codes: I18, O31

Chapter : 09

Usage

```
data(Dialysis)
```

Format

A dataframe containing:

state the state id

time the year of observation

diffusion the number of equipment divided by the number of the equipment in the given state for the most recent period

trend a linear trend

regulation a dummy variable for the presence of a certificate of need regulation for the given state and the given period

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Steven B. Caudill, Jon M. Ford and David L. Kaserman (1995) "Certificate of Need Regulation and the Diffusion of Innovations : a Random Coefficient Model", *Journal of Applied Econometrics*, **10**, 73–78., doi: [10.1002/jae.3950100107](https://doi.org/10.1002/jae.3950100107) .

Examples

```
#### Example 9-1

## -----
library("plm")

## -----
data("Dialysis", package = "pder")
rndcoef <- pvcml(log(diffusion / (1 - diffusion)) ~ trend + trend:regulation,
                Dialysis, model="random")
summary(rndcoef)

## -----
cbind(coef(rndcoef), stdev = sqrt(diag(rndcoef$Delta)))
```

Donors

Dynamics of Charitable Giving

Description

a pseudo-panel of 32 individuals from 2006
number of observations : 1039
number of individual observations : 4-80
country : United States
package : limdeppanel
JEL codes: C93, D64, D82, H41, L31, Z12
Chapter : 08

Usage

```
data(Donors)
```

Format

A dataframe containing:

id the id of the solicitor
solsex the sex of the solicitor
solmin does the solicitor belongs to a minority ?
beauty beauty rating for the solicitor
assertive assertive rating for the solicitor
social social rating for the solicitor

efficacy efficacy rating for the solicitor
performance performance rating for the solicitor
confidence confidence rating for the solicitor
age age of the individual
sex sex of the individual
min does the individual belongs to a minority
treatment the treatment, one of "vcm", "sgift" and "lgift"
refgift has the individual refused the gift ?
donation the amount of the donation
prior has the individual been visited during the previous campaign ?
prtreat the treatment during the previous campaign, one of "none", "vcm", and "lottery"
prcontr has the individual made a donation during the previous campaign ?
prdonation the amount of the donation during the previous campaign
prsolsex the sex of the solicitor during the previous campaign
prsolmin did the solicitor of the previous campaign belong to a minority ?
prbeauty beauty rating for the solicitor of the previous campaign

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Landry, Craig E.; Lange, Andreas; List, John A.; Price, Michael K. and Nicholas G. Rupp (2010)
 "Is a Donor in Hand Better Than Two in the Bush ? Evidence From a Natural Field Experiment",
American Economic Review, **100(3)**, 958–983, doi: [10.1257/aer.100.3.958](https://doi.org/10.1257/aer.100.3.958) .

Examples

```
#### Example 8-5

## -----
## Not run:
data("Donors", package = "pder")
library("plm")
T3.1 <- plm(donation ~ treatment + prcontr, Donors, index = "id")
T3.2 <- plm(donation ~ treatment * prcontr - prcontr, Donors, index = "id")
T5.A <- pldv(donation ~ treatment + prcontr, Donors, index = "id",
            model = "random", method = "bfgs")
T5.B <- pldv(donation ~ treatment * prcontr - prcontr, Donors, index = "id",
            model = "random", method = "bfgs")

## End(Not run)
```

etw

Spatial weights matrix for EvapoTransp

Description

Spatial weights matrix for the EvapoTransp data frame

Usage

`data(etw)`

Format

A 86x86 matrix with elements different from zero if area i and j are neighbours. Weights are row standardized.

Author(s)

Giovanni Millo

EvapoTransp

Evapotranspiration

Description

a pseudo-panel of 86 areas from 2008

number of observations : 430

number of individual observations : 5

country : France

package : panel

Chapter : 10

Usage

`data(EvapoTransp)`

Format

A dataframe containing:

id observation site
period measuring period
et evapotranspiration
prec precipitation
meansmd mean soil moisture deficit
potet potential evapotranspiration
infil infiltration rate
biomass biomass
biomassp1 biomass in early growing season
biomassp2 biomass in main growth period
biomassp3 peak biomass
biomassp4 peak biomass after clipping
biomassp5 biomass in autumn
plantcover plant cover
softforbs soft-leaved forbs
tallgrass tall grass
diversity species diversity
matgram mat-forming graminoids
dwarfshrubs dwarf shrubs
legumes abundance of legumes

Source

kindly provided by the authors

References

Obojes, N.; Bahn, M.; Tasser, E.; Walde, J.; Inauen, N.; Hiltbrunner, E.; Saccone, P.; Locket, J.; Clément, J. and S. Lavorel (2015) “Vegetation Effects on the Water Balance of Mountain Grasslands Depend on Climatic Conditions”, *Ecohydrology*, **8(4)**, 552-569, doi: [10.1002/eco.1524](https://doi.org/10.1002/eco.1524) .

Examples

```
#### Example 10-14

## -----
## Not run:
data("EvapoTransp", package = "pder")
data("etw", package = "pder")
if (requireNamespace("splm")){
  library("splm")
}
```

```

evapo <- et ~ prec + meansmd + potet + infil + biomass + plantcover +
  softforbs + tallgrass + diversity + matgram + dwarfshrubs + legumes
semsr.evapo <- spreml(evapo, data=EvapoTransp, w=etw,
  lag=FALSE, errors="semsr")
summary(semsr.evapo)
}

## -----
library("plm")
if (requireNamespace("lmtest")){
  coeftest(plm(evapo, EvapoTransp, model="pooling"))
}

## -----

if (requireNamespace("lmtest") & requireNamespace("splm")){
  coeftest(spreml(evapo, EvapoTransp, w=etw, errors="sem"))
}

#### Example 10-17

## -----

if (requireNamespace("lmtest")){
  saremsrre.evapo <- spreml(evapo, data = EvapoTransp,
    w = etw, lag = TRUE, errors = "semsr")
  summary(saremsrre.evapo)$ARCoefTable
  round(summary(saremsrre.evapo)$ErrCompTable, 6)
}

## End(Not run)

```

Description

5-yearly observations of 78 countries from 1960 to 1995

number of observations : 546

number of time-series : 7

country : world

package : panel

JEL codes: G20, O16, O47, C23, C33, O15

Chapter : 07

Usage

```
data(FinanceGrowth)
```

Format

A dataframe containing:

country country name
period period
growth growth rate * 100
privo log private credit / GDP
lly log liquid liabilities / GDP
btot log bank credit/total credit
lgdp log initial gdp per capita (PPP)
sec mean years of secondary schooling
gov log government spending / GDP
lbmp log(1 black market premium)
lpi log(1 + inflation rate)
trade log (imports + exports)/GDP

Source

<http://www.cgdev.org/content/publications/detail/14256>

References

Levine, Ross; Loayza, Norman and Thorsten Beck (2000) “Financial Intermediation and Growth: Causality and Causes”, *Journal of Monetary Economics*, **46**, 31-77, doi: [10.1016/S03043932\(00\)00017-9](https://doi.org/10.1016/S03043932(00)00017-9) .

Roodman, David (2009) “A Note on the Theme of Two Many Instruments”, *Oxford Bulletin of Economics An Statistics*, **71(1)**, 135–158, doi: [10.1111/j.14680084.2008.00542.x](https://doi.org/10.1111/j.14680084.2008.00542.x) .

ForeignTrade

Foreign Trade of Developing Countries

Description

yearly observations of 31 countries from 1963 to 1986
number of observations : 744
number of time-series : 24
country : developing countries
package : panelivreg
JEL codes: O19, C51, F17
Chapter : 02, 06

Usage

```
data(ForeignTrade)
```

Format

A dataframe containing:

country country name

year year

exports nominal exports deflated by the unit value of exports per capita

imports nominal imports deflated by the unit value of exports per capita

resimp official foreing reserves (in US dollars) divided by nominal imports (in US dollars)

gnp real GNP per capita

pgnp trend real GNP per capita calculated by fitting linear trend $y_{it} = y_{0i} \exp(g_i t)$, where y_{0i} is the initial value of real gnp per capita for country i and g_i is the i th country's average growth rate over 1964-1986

gnpw real genp for USA per capita

pm unit value of imports (in US dollars), 1980 = 100

px unit value of exports (in US dollars), 1980 = 100

cpi domestic CPI, 1980 = 100

pw US producer's price index, 1980 = 100

exrate exchange rate (price of US dollars in local currency), 1980 = 1

consump domestic consumption per capita,

invest domestic fixed gross investment per capita

income domestic disposable income per capita

pop population

reserves official foreing reserves (in US dollars)

money domestic money supply per capita

trend trend dummy, 1964 = 1

pwpci log of us producer price index divided by domestic cpi

importspmpx log of nominal imports divided by export prices

pmcpi log of imports price divided by domestic cpi

pxpw log of exports price divided by domestic cpi

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Kinal, T. and K. Lahiri (1993) "On the Estimation of Simultaneous-equations Error-components Models with An Application to a Model of Developing Country Foreign Trade", *Journal of Applied Economics*, **8**, 81-92, doi: [10.1002/jae.3950080107](https://doi.org/10.1002/jae.3950080107) .

Examples

```
#### Example 2-4

## -----
library("plm")
data("ForeignTrade", package = "pder")
FT <- pdata.frame(ForeignTrade)
summary(FT$gnp)
ercomp(imports ~ gnp, FT)
models <- c("within", "random", "pooling", "between")
sapply(models, function(x) coef(plm(imports ~ gnp, FT, model = x))["gnp"])

#### Example 6-2

## -----
data("ForeignTrade", package = "pder")
w1 <- plm(imports~pmcpi + gnp + lag(imports) + lag(resimp) |
         lag(consump) + lag(cpi) + lag(income) + lag(gnp) + pm +
         lag(invest) + lag(money) + gnpw + pw + lag(reserves) +
         lag(exports) + trend + pgnp + lag(px),
         ForeignTrade, model = "within")
r1 <- update(w1, model = "random", random.method = "nerlove",
            random.dfcor = c(1, 1), inst.method = "baltagi")

## -----
phptest(r1, w1)

## -----
r1b <- plm(imports ~ pmcpi + gnp + lag(imports) + lag(resimp) |
         lag(consump) + lag(cpi) + lag(income) + lag(px) +
         lag(reserves) + lag(exports) | lag(gnp) + pm +
         lag(invest) + lag(money) + gnpw + pw + trend + pgnp,
         ForeignTrade, model = "random", inst.method = "baltagi",
         random.method = "nerlove", random.dfcor = c(1, 1))

phptest(w1, r1b)

## -----
rbind(within = coef(w1), ec2s1s = coef(r1b)[-1])

## -----
elast <- sapply(list(w1, r1, r1b),
               function(x) c(coef(x)["pmcpi"],
                             coef(x)["pmcpi"] / (1 - coef(x)["lag(imports)"])))
dimnames(elast) <- list(c("ST", "LT"), c("w1", "r1", "r1b"))
elast

## -----
rbind(within = coef(summary(w1))[, 2],
      ec2s1s = coef(summary(r1b))[-1, 2])
```

```
#### Example 6-4

## -----
eqimp <- imports ~ pmcpi + gnp + lag(imports) +
  lag(resimp) | lag(consump) + lag(cpi) + lag(income) +
  lag(px) + lag(reserves) + lag(exports) | lag(gnp) + pm +
  lag(invest) + lag(money) + gnpw + pw + trend + pgnp
eqexp <- exports ~ ppxw + gnpw + lag(exports) |
  lag(gnp) + pw + lag(consump) + pm + lag(px) + lag(cpi) |
  lag(money) + gnpw + pgnp + pop + lag(invest) +
  lag(income) + lag(reserves) + exrate
r12 <- plm(list(import.demand = eqimp,
  export.demand = eqexp),
  data = ForeignTrade, index = 31, model = "random",
  inst.method = "baltagi", random.method = "nerlove",
  random.dfcor = c(1, 1))
summary(r12)

## -----
rbind(ec2spls = coef(summary(r1b))[-1, 2],
  ec3spls = coef(summary(r12), "import.demand")[-1, 2])
```

Description

yearly observations of 216 articles from 1970 to 2001

number of observations : 4880

number of time-series : 32

country : United States

package : countpanel

JEL codes: D02, D83, I23, O30

Chapter : 08

Usage

```
data(GiantsShoulders)
```

Format

A dataframe containing:

pair the pair article index

article the article index

brc material of the article is deposit on a Biological Ressource Center

pubyear publication year of the article
brcyear year of the deposit in brc of the material related to the article
year the year index
citations the number of citations

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Furman, Jeffrey L. and Scott Stern (2011) “Climbing Atop the Shoulders of Giants: the Impact of Institutions on Cumulative Research”, *American Economic Review*, **101(5)**, 1933-1963, doi: [10.1257/aer.101.5.1933](https://doi.org/10.1257/aer.101.5.1933) .

Examples

```
#### Example 8-6

## -----
## Not run:
data("GiantsShoulders", package = "pder")
head(GiantsShoulders)

## -----

if (requireNamespace("dplyr")){
  library("dplyr")
  GiantsShoulders <- mutate(GiantsShoulders, age = year - pubyear)
  cityear <- summarise(group_by(GiantsShoulders, brc, age),
    cit = mean(citations, na.rm = TRUE))
  GiantsShoulders <- mutate(GiantsShoulders,
    window = as.numeric( (brc == "yes") &
      abs(brcyear - year) <= 1),
    post_brc = as.numeric( (brc == "yes") &
      year - brcyear > 1),
    age = year - pubyear)
  GiantsShoulders$age[GiantsShoulders$age == 31] <- 0
  #GiantsShoulders$year[GiantsShoulders$year
  #GiantsShoulders$year[GiantsShoulders$year
  GiantsShoulders$year[GiantsShoulders$year < 1975] <- 1970
  GiantsShoulders$year[GiantsShoulders$year >= 1975 & GiantsShoulders$year < 1980] <- 1975

  if (requireNamespace("pglm")){
    library("pglm")
    t3c1 <- lm(log(1 + citations) ~ brc + window + post_brc + factor(age),
      data = GiantsShoulders)
    t3c2 <- update(t3c1, . ~ .+ factor(pair) + factor(year))
    t3c3 <- pglm(citations ~ brc + window + post_brc + factor(age) + factor(year),
      data = GiantsShoulders, index = "pair",
      effect = "individual", model = "within", family = negbin)
```

```

t3c4 <- pglm(citations ~ window + post_brc + factor(age) + factor(year),
            data = GiantsShoulders, index = "article",
            effect = "individual", model = "within", family = negbin)
## screenreg(list(t3c2, t3c3, t3c4),
##           custom.model.names = c("ols: age/year/pair-FE",
##                                   "NB:age/year/pair-FE", "NB: age/year/article-FE"),
##           omit.coef="(factor)|(Intercept)", digits = 3)
}
}

## End(Not run)

```

HousePricesUS

House Prices Data

Description

yearly observations of 49 regions from 1976 to 2003

number of observations : 1421

number of time-series : 29

country : United States

package : hedprice

JEL codes: C51, R31

Chapter : 09, 10

Usage

```
data(HousePricesUS)
```

Format

A dataframe containing:

state state index

year year

names state name

plate state number plate index

region region index

region.name region name

price real house price index, 1980=100

income real per-capita income

pop total population

intrate real interest rate on borrowing

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Holly, S.; Pesaran, M.G. and T. Yamagata (2010) "A Spatio-temporal Model of House Prices in the USA", *Journal of Econometrics*, **158(1)**, 160–173, doi: [10.1016/j.jeconom.2010.03.040](https://doi.org/10.1016/j.jeconom.2010.03.040) .

Millo, Giovanni (2015) "Narrow Replication of 'spatio-temporal Model of House Prices in the Usa', Using R", *Journal of Applied Econometrics*, **30(4)**, 703–704, doi: [10.1002/jae.2424](https://doi.org/10.1002/jae.2424) .

Examples

```
#### Example 4-11

## -----
## Not run:
data("HousePricesUS", package = "pder")
library("plm")
php <- pdata.frame(HousePricesUS)

## -----
cbind("rho" = pcdtest(diff(log(php$price)), test = "rho")$statistic,
      "|rho|" = pcdtest(diff(log(php$price)), test = "absrho")$statistic)

## -----
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)

## -----
pcdtest(diff(log(price)) ~ diff(lag(log(price))) + diff(lag(log(price), 2)),
        data = php)

#### Example 9-2

## -----
data("HousePricesUS", package = "pder")
swmod <- pvcmls(log(price) ~ log(income), data = HousePricesUS, model = "random")
mgmod <- pmglsm(log(price) ~ log(income), data = HousePricesUS, model = "mg")
coefs <- cbind(coef(swmod), coef(mgmod))
dimnames(coefs)[[2]] <- c("Swamy", "MG")
coefs

#### Example 9-3

## -----

if (requireNamespace("texreg")){
```

```

library("texreg")
data("RDSpillovers", package = "pder")
fm.rds <- lny ~ ln1 + lnk + lnrd
mg.rds <- pmg(fm.rds, RDSpillovers, trend = TRUE)
dmg.rds <- update(mg.rds, . ~ lag(lny) + .)
screenreg(list('Static MG' = mg.rds, 'Dynamic MG' = dmg.rds), digits = 3)
if (requireNamespace("msm")){
  library("msm")
  b.lr <- coef(dmg.rds)["lnrd"]/(1 - coef(dmg.rds)["lag(lny)"])
  SEb.lr <- deltamethod(~ x5 / (1 - x2),
                       mean = coef(dmg.rds), cov = vcov(dmg.rds))
  z.lr <- b.lr / SEb.lr
  pval.lr <- 2 * pnorm(abs(z.lr), lower.tail = FALSE)
  lr.lnrd <- matrix(c(b.lr, SEb.lr, z.lr, pval.lr), nrow=1)
  dimnames(lr.lnrd) <- list("lnrd (long run)", c("Est.", "SE", "z", "p.val"))
  round(lr.lnrd, 3)
}
}

#### Example 9-4

## -----
housep.np <- pvcml(log(price) ~ log(income), data = HousePricesUS, model = "within")
housep.pool <- plm(log(price) ~ log(income), data = HousePricesUS, model = "pooling")
housep.within <- plm(log(price) ~ log(income), data = HousePricesUS, model = "within")

d <- data.frame(x = c(coef(housep.np)[[1]], coef(housep.np)[[2]]),
               coef = rep(c("intercept", "log(income)"),
                          each = nrow(coef(housep.np))))
if (requireNamespace("ggplot2")){
  library("ggplot2")
  ggplot(d, aes(x)) + geom_histogram(col = "black", fill = "white", bins = 8) +
  facet_wrap(~ coef, scales = "free") + xlab("") + ylab("")
}

## -----
summary(housep.np)

## -----
pooltest(housep.pool, housep.np)
pooltest(housep.within, housep.np)

#### Example 9-5

## -----
library("texreg")
cmgmod <- pmg(log(price) ~ log(income), data = HousePricesUS, model = "cmg")
screenreg(list(mg = mgmod, ccemg = cmgmod), digits = 3)

#### Example 9-6

```

```

## -----
ccemgmod <- pcce(log(price) ~ log(income), data=HousePricesUS, model="mg")
summary(ccemgmod)

## -----
ccepmod <- pcce(log(price) ~ log(income), data=HousePricesUS, model="p")
summary(ccepmod)

#### Example 9-8

## -----
data("HousePricesUS", package = "pder")
price <- pdata.frame(HousePricesUS)$price
purtest(log(price), test = "levinlin", lags = 2, exo = "trend")
purtest(log(price), test = "madwu", lags = 2, exo = "trend")
purtest(log(price), test = "ips", lags = 2, exo = "trend")

#### Example 9-9

## -----
tab5a <- matrix(NA, ncol = 4, nrow = 2)
tab5b <- matrix(NA, ncol = 4, nrow = 2)

for(i in 1:4) {
  mymod <- pmg(diff(log(income)) ~ lag(log(income)) +
              lag(diff(log(income)), 1:i),
              data = HousePricesUS,
              model = "mg", trend = TRUE)
  tab5a[1, i] <- pcdtest(mymod, test = "rho")$statistic
  tab5b[1, i] <- pcdtest(mymod, test = "cd")$statistic
}

for(i in 1:4) {
  mymod <- pmg(diff(log(price)) ~ lag(log(price)) +
              lag(diff(log(price)), 1:i),
              data=HousePricesUS,
              model="mg", trend = TRUE)
  tab5a[2, i] <- pcdtest(mymod, test = "rho")$statistic
  tab5b[2, i] <- pcdtest(mymod, test = "cd")$statistic
}

tab5a <- round(tab5a, 3)
tab5b <- round(tab5b, 2)
dimnames(tab5a) <- list(c("income", "price"),
                      paste("ADF(", 1:4, ")", sep=""))
dimnames(tab5b) <- dimnames(tab5a)

tab5a
tab5b

```

```

## -----
php <- pdata.frame(HousePricesUS)
cipstest(log(php$price), type = "drift")
cipstest(diff(log(php$price)), type = "none")

## -----
cipstest(resid(ccemgmod), type="none")
cipstest(resid(ccepmmod), type="none")

#### Example 10-2

## -----
data("usaw49", package="pder")
library("plm")
php <- pdata.frame(HousePricesUS)
pcdtest(php$price, w = usaw49)

## -----

if (requireNamespace("splm")){
  library("splm")
  rwtest(php$price, w = usaw49, replications = 999)
}

## -----
mgmod <- pmg(log(price) ~ log(income), data = HousePricesUS)
ccemgmod <- pmg(log(price) ~ log(income), data = HousePricesUS, model = "cmg")
pcdtest(resid(ccemgmod), w = usaw49)
rwtest(resid(mgmod), w = usaw49, replications = 999)

## End(Not run)

```

IncomeMigrationH

Income and Migration, Household Data

Description

yearly observations of 317 households from 2000 to 2006

number of observations : 2219

number of time-series : 7

country : Indonesia

package : limdeppanel

JEL codes: F22, J43, O13, O15, Q11, Q12, R23

Chapter : 08

Usage

```
data(IncomeMigrationH)
```

Format

A dataframe containing:

household household index

year the year

migration a dummy indicating whether a household has any migrant departing in year t+1

price rice price shock

rain rain shock

land landholdings (ha)

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Bazzi, Samuel (2017) “Wealth Heterogeneity and the Income Elasticity of Migration”, *American Economic Journal, Applied Economics*, **9(2)**, 219–255, doi: [10.1257/app.20150548](https://doi.org/10.1257/app.20150548) .

IncomeMigrationV

Income and Migration, Village Data

Description

3-yearly observations of 44674 villages from 2005 to 2008

number of observations : 89348

number of time-series : 2

country : Indonesia

package : panellimdep

JEL codes: F22, J43, O13, O15, Q11, Q12, R23

Chapter : 08

Usage

```
data(IncomeMigrationV)
```

Format

A dataframe containing:

village village index

year the year

emigration share of the emigrants in the total population

district the district of the village

price rice price shock

rain rain shock

pareto Pareto parameter of the landholdings distribution

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Bazzi, Samuel (2017) “Wealth Heterogeneity and the Income Elasticity of Migration”, *American Economic Journal, Applied Economics*, **9(2)**, 219–255, doi: [10.1257/app.20150548](https://doi.org/10.1257/app.20150548) .

Index.jel

JEL codes

Description

- **C13** : Estimation: General
 - [TexasElectr](#) : Production of electricity in Texas
 - [Tileries](#) : Production of tileries in Egypt
- **C23** : Single Equation Models; Single Variables: Panel Data Models; Spatio-temporal Models
 - [FinanceGrowth](#) : Financial institutions and growth
 - [IneqGrowth](#) : Inequality and growth
 - [TexasElectr](#) : Production of electricity in Texas
 - [Tileries](#) : Production of tileries in Egypt
- **C33** : Multiple or Simultaneous Equation Models: Panel Data Models; Spatio-temporal Models
 - [FinanceGrowth](#) : Financial institutions and growth
 - [IneqGrowth](#) : Inequality and growth
- **C51** : Model Construction and Estimation
 - [ForeignTrade](#) : Foreign Trade of Developing countries
 - [HousePricesUS](#) : House Prices data
 - [RDPerfComp](#) : R and D performing companies

- [RDSpillovers](#) : Research and development spillovers data
- [TexasElectr](#) : Production of electricity in Texas
- [Tileries](#) : Production of tileries in Egypt
- [TradeEU](#) : Trade in the European Union
- **C78** : Bargaining Theory; Matching Theory
 - [LateBudgets](#) : Late Budgets
- **C90** : Design of Experiments: General
 - [Seniors](#) : Intergenerationals experiments
- **C92** : Design of Experiments: Laboratory, Group Behavior
 - [CoordFailure](#) : How to overcome organization failure in organization
- **C93** : Field Experiments
 - [Donors](#) : Dynamics of charitable giving
- **D02** : Institutions: Design, Formation, Operations, and Impact
 - [GiantsShoulders](#) : Impact of institutions on cumulative research
- **D23** : Organizational Behavior; Transaction Costs; Property Rights
 - [CoordFailure](#) : How to overcome organization failure in organization
- **D24** : Production; Cost; Capital; Capital, Total Factor, and Multifactor Productivity; Capacity
 - [RDPerfComp](#) : R and D performing companies
 - [RDSpillovers](#) : Research and development spillovers data
 - [TexasElectr](#) : Production of electricity in Texas
 - [Tileries](#) : Production of tileries in Egypt
 - [TurkishBanks](#) : Turkish Banks
- **D64** : Altruism; Philanthropy; Intergenerational Transfers
 - [Donors](#) : Dynamics of charitable giving
- **D72** : Political Processes: Rent-seeking, Lobbying, Elections, Legislatures, and Voting Behavior
 - [DemocracyIncome](#) : The relation between democracy and income
 - [DemocracyIncome25](#) : The relation between democracy and income
 - [LandReform](#) : Politics and land reforms in India
 - [LateBudgets](#) : Late Budgets
 - [Mafia](#) : Mafia and Public Spending
 - [Reelection](#) : Deficits and reelection
 - [RegIneq](#) : Interregional redistribution and inequalities
 - [ScrambleAfrica](#) : The long-run effects of the scramble for Africa
- **D74** : Conflict; Conflict Resolution; Alliances; Revolutions
 - [ScrambleAfrica](#) : The long-run effects of the scramble for Africa
- **D82** : Asymmetric and Private Information; Mechanism Design
 - [Donors](#) : Dynamics of charitable giving
- **D83** : Search; Learning; Information and Knowledge; Communication; Belief; Unawareness

- [GiantsShoulders](#) : Impact of institutions on cumulative research
- **E24** : Employment; Unemployment; Wages; Intergenerational Income Distribution; Aggregate Human Capital; Aggregate Labor Productivity
 - [Callbacks](#) : Callbacks to job applications
- **E32** : Business Fluctuations; Cycles
 - [Callbacks](#) : Callbacks to job applications
- **E62** : Fiscal Policy
 - [Mafia](#) : Mafia and Public Spending
 - [Reelection](#) : Deficits and reelection
- **F12** : Models of Trade with Imperfect Competition and Scale Economies; Fragmentation
 - [TradeFDI](#) : Trade and Foreign Direct Investment in Germany and the United States
- **F14** : Empirical Studies of Trade
 - [TradeEU](#) : Trade in the European Union
 - [TradeFDI](#) : Trade and Foreign Direct Investment in Germany and the United States
- **F17** : Trade: Forecasting and Simulation
 - [ForeignTrade](#) : Foreign Trade of Developing countries
- **F21** : International Investment; Long-term Capital Movements
 - [TradeFDI](#) : Trade and Foreign Direct Investment in Germany and the United States
- **F22** : International Migration
 - [IncomeMigrationH](#) : Income and Migration, household data
 - [IncomeMigrationV](#) : Income and Migration, village data
- **F23** : Multinational Firms; International Business
 - [TradeFDI](#) : Trade and Foreign Direct Investment in Germany and the United States
- **F32** : Current Account Adjustment; Short-term Capital Movements
 - [TwinCrises](#) : Costs of currency and banking crises
- **F51** : International Conflicts; Negotiations; Sanctions
 - [ScrambleAfrica](#) : The long-run effects of the scramble for Africa
- **G15** : International Financial Markets
 - [TwinCrises](#) : Costs of currency and banking crises
- **G20** : Financial Institutions and Services: General
 - [FinanceGrowth](#) : Financial institutions and growth
- **G21** : Banks; Depository Institutions; Micro Finance Institutions; Mortgages
 - [TurkishBanks](#) : Turkish Banks
 - [TwinCrises](#) : Costs of currency and banking crises
- **H23** : Taxation and Subsidies: Externalities; Redistributive Effects; Environmental Taxes and Subsidies
 - [RegIneq](#) : Interregional redistribution and inequalities
- **H41** : Public Goods

- [Donors](#) : Dynamics of charitable giving
- **H61** : National Budget; Budget Systems
 - [LateBudgets](#) : Late Budgets
- **H62** : National Deficit; Surplus
 - [Reelection](#) : Deficits and reelection
- **H71** : State and Local Taxation, Subsidies, and Revenue
 - [Mafia](#) : Mafia and Public Spending
 - [RegIneq](#) : Interregional redistribution and inequalities
- **H72** : State and Local Budget and Expenditures
 - [LateBudgets](#) : Late Budgets
- **H73** : State and Local Government; Intergovernmental Relations: Interjurisdictional Differentials and Their Effects
 - [RegIneq](#) : Interregional redistribution and inequalities
- **H77** : Intergovernmental Relations; Federalism; Secession
 - [RegIneq](#) : Interregional redistribution and inequalities
- **I18** : Health: Government Policy; Regulation; Public Health
 - [Dialysis](#) : Diffusion of haemodialysis technology
- **I23** : Higher Education; Research Institutions
 - [GiantsShoulders](#) : Impact of institutions on cumulative research
- **J14** : Economics of the Elderly; Economics of the Handicapped; Non-labor Market Discrimination
 - [Callbacks](#) : Callbacks to job applications
 - [Seniors](#) : Intergenerationals experiments
- **J15** : Economics of Minorities, Races, Indigenous Peoples, and Immigrants; Non-labor Discrimination
 - [ScrambleAfrica](#) : The long-run effects of the scramble for Africa
- **J22** : Time Allocation and Labor Supply
 - [Callbacks](#) : Callbacks to job applications
- **J23** : Labor Demand
 - [Callbacks](#) : Callbacks to job applications
- **J26** : Retirement; Retirement Policies
 - [Seniors](#) : Intergenerationals experiments
- **J31** : Wage Level and Structure; Wage Differentials
 - [TexasElectr](#) : Production of electricity in Texas
 - [Tileries](#) : Production of tileries in Egypt
- **J43** : Agricultural Labor Markets
 - [IncomeMigrationH](#) : Income and Migration, household data
 - [IncomeMigrationV](#) : Income and Migration, village data

- **J64** : Unemployment: Models, Duration, Incidence, and Job Search
 - [Callbacks](#) : Callbacks to job applications
- **K42** : Illegal Behavior and the Enforcement of Law
 - [Mafia](#) : Mafia and Public Spending
 - [SeatBelt](#) : Seat belt usage and traffic fatalities
- **L31** : Nonprofit Institutions; NGOs; Social Entrepreneurship
 - [Donors](#) : Dynamics of charitable giving
- **L33** : Comparison of Public and Private Enterprises and Nonprofit Institutions; Privatization; Contracting Out
 - [TurkishBanks](#) : Turkish Banks
- **L82** : Entertainment; Media
 - [MagazinePrices](#) : Magazine prices
- **M12** : Personnel Management; Executives; Executive Compensation
 - [Seniors](#) : Intergenerationals experiments
- **M51** : Personnel Economics: Firm Employment Decisions; Promotions
 - [Seniors](#) : Intergenerationals experiments
- **O13** : Economic Development: Agriculture; Natural Resources; Energy; Environment; Other Primary Products
 - [IncomeMigrationH](#) : Income and Migration, household data
 - [IncomeMigrationV](#) : Income and Migration, village data
 - [LandReform](#) : Politics and land reforms in India
- **O15** : Economic Development: Human Resources; Human Development; Income Distribution; Migration
 - [FinanceGrowth](#) : Financial institutions and growth
 - [IncomeMigrationH](#) : Income and Migration, household data
 - [IncomeMigrationV](#) : Income and Migration, village data
 - [IneqGrowth](#) : Inequality and growth
 - [ScrambleAfrica](#) : The long-run effects of the scramble for Africa
- **O16** : Economic Development: Financial Markets; Saving and Capital Investment; Corporate Finance and Governance
 - [FinanceGrowth](#) : Financial institutions and growth
 - [IneqGrowth](#) : Inequality and growth
 - [TwinCrises](#) : Costs of currency and banking crises
- **O17** : Formal and Informal Sectors; Shadow Economy; Institutional Arrangements
 - [LandReform](#) : Politics and land reforms in India
 - [ScrambleAfrica](#) : The long-run effects of the scramble for Africa
- **O19** : International Linkages to Development; Role of International Organizations
 - [ForeignTrade](#) : Foreign Trade of Developing countries
 - [TwinCrises](#) : Costs of currency and banking crises

- **O30** : Innovation; Research and Development; Technological Change; Intellectual Property Rights: General
 - [GiantsShoulders](#) : Impact of institutions on cumulative research
- **O31** : Innovation and Invention: Processes and Incentives
 - [Dialysis](#) : Diffusion of haemodialysis technology
- **O32** : Management of Technological Innovation and R&D
 - [RDSpillovers](#) : Research and development spillovers data
- **O33** : Technological Change: Choices and Consequences; Diffusion Processes
 - [RDSpillovers](#) : Research and development spillovers data
- **O41** : One, Two, and Multisector Growth Models
 - [Solow](#) : Growth model
- **O47** : Empirical Studies of Economic Growth; Aggregate Productivity; Cross-Country Output Convergence
 - [DemocracyIncome](#) : The relation between democracy and income
 - [DemocracyIncome25](#) : The relation between democracy and income
 - [FinanceGrowth](#) : Financial institutions and growth
 - [IneqGrowth](#) : Inequality and growth
 - [Reelection](#) : Deficits and reelection
 - [Solow](#) : Growth model
 - [TwinCrises](#) : Costs of currency and banking crises
- **Q11** : Agriculture: Aggregate Supply and Demand Analysis; Prices
 - [IncomeMigrationH](#) : Income and Migration, household data
 - [IncomeMigrationV](#) : Income and Migration, village data
- **Q12** : Micro Analysis of Farm Firms, Farm Households, and Farm Input Markets
 - [IncomeMigrationH](#) : Income and Migration, household data
 - [IncomeMigrationV](#) : Income and Migration, village data
- **Q15** : Land Ownership and Tenure; Land Reform; Land Use; Irrigation; Agriculture and Environment
 - [LandReform](#) : Politics and land reforms in India
- **R12** : Size and Spatial Distributions of Regional Economic Activity
 - [RegIneq](#) : Interregional redistribution and inequalities
- **R23** : Urban, Rural, Regional, Real Estate, and Transportation Economics: Regional Migration; Regional Labor Markets; Population; Neighborhood Characteristics
 - [IncomeMigrationH](#) : Income and Migration, household data
 - [IncomeMigrationV](#) : Income and Migration, village data
 - [RegIneq](#) : Interregional redistribution and inequalities
- **R31** : Housing Supply and Markets
 - [HousePricesUS](#) : House Prices data
- **R41** : Transportation: Demand, Supply, and Congestion; Travel Time; Safety and Accidents; Transportation Noise

- [SeatBelt](#) : Seat belt usage and traffic fatalities
- **Z12** : Cultural Economics: Religion
 - [Donors](#) : Dynamics of charitable giving
- **Z13** : Economic Sociology; Economic Anthropology; Language; Social and Economic Stratification
 - [ScrambleAfrica](#) : The long-run effects of the scramble for Africa

 IneqGrowth

Inequality and Growth

Description

5-yearly observations of 266 world from 1961 to 1995

number of observations : 1862

number of time-series : 7

country : country

package : panel

JEL codes: O47, O15, C23, C33, O16

Chapter : 07

Usage

```
data(IneqGrowth)
```

Format

A dataframe containing:

country country name

period the period

growth growth rate

yssw years of secondary schooling among women, lagged

yssm years of secondary schooling among men, lagged

pinv price level of investment, lagged

lgdp log initial gdp per capita

gini gini index

Source

<http://www.cgdev.org/content/publications/detail/14256>

References

- Forbes, Kristin J. (2000) “A Reassessment of the Relationship Between Inequality and Growth”, *American Economic Review*, **90(4)**, 869-887, doi: [10.1257/aer.90.4.869](https://doi.org/10.1257/aer.90.4.869) .
- Roodman, David (2009) “A Note on the Theme of Two Many Instruments”, *Oxford Bulletin of Economics An Statistics*, **71(1)**, 135–158, doi: [10.1111/j.14680084.2008.00542.x](https://doi.org/10.1111/j.14680084.2008.00542.x) .

LandReform

Politics and Land Reforms in India

Description

yearly observations of 89 villages from 1974 to 2003
number of observations : 2670
number of time-series : 30
country : India
package : panellimdep
JEL codes: D72, O13, O17, Q15
Chapter : 08

Usage

```
data(LandReform)
```

Format

A dataframe containing:

mouza village id number
year Year
district District
rplacul ratio of patta land registered to operational land
rpdrhh ratio of pattadar households to total households (hh)
rblacul ratio of barga land registered to operational land
rbgdrghh ratio of bargadar registered hh to total hh
election election year dummy
preelect preelection year dummy
edwalfco to complete
erlesscu interpolated landless hh, gi
ermgcu interpolated mg hh, gi
ersmcu interpolated sm hh, gi
ermdcu interpolated md hh, gi

ercusmol ratio of land below 5 acres cultivable NOT extrapolated
ercubgol ratio of land above 12.5 acres cultivable
erillnb interpolated ratio of illiterate non big hh
erlow interpolated ratio of low caste hh
ratleft0 Left Front share in GP, == 0 for 1974
dwalfco Assembly average vote difference LF-INC, district
inflat Inflation in last 5 years in CPI for Agricultural Labourers
smfempyv Year variation in Employment in Small Scale Industrial Units registered with Dir
incseats INC seats / Total seats in Lok Sabha
lfseats Ratio of LF seats in parliament
inflflag Interaction between Inflation and ratleft lagged
inclflag Interaction between INC seats and ratleft lagged
lfflag Interaction between LF seats and ratleft lagged
ratleft Left Front share in GP, ==share of assembly seats for 1974
infiw to complete
infumme to complete
infal to complete
gp Gran Panchayat

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Bardhan, Pranab and Dilip Mookherjee (2010) “Determinants of Redistributive Politics: An Empirical Analysis of Land Reform in West Bengal, India”, *American Economic Review*, **100(4)**, 1572–1600, doi: [10.1257/aer.100.4.1572](https://doi.org/10.1257/aer.100.4.1572) .

LateBudgets

Late Budgets

Description

yearly observations of 48 States from 1978 to 2007
number of observations : 1440
number of time-series : 30
country : United States
package : limdeppanel
JEL codes: C78, D72, H61, H72
Chapter : 08

Usage

```
data(LateBudgets)
```

Format

A dataframe containing:

state the state

year the year

late late budget ?

dayslate number of days late for the budget

unempdiff unemployment variation

splitbranch split branch

splitleg split legislature

elecyear election year

endbalance end of year balances in the general fund and stabilization fund

demgov democrat governor ?

lameduck lameduck

govexp number of years since the incumbent governor took office

newgov new governor ?

pop the polulation

kids percentage of population aged 5-17

elderly percentage of population aged 65 or older

nocarry does the state law does not allow a budget deficit to be carried over to the next fiscal year ?

supmaj is a super majority required to pass each budget ?

fulltimeleg full time legislature ?

shutdown shutdown provision ?

black percentage of blacks

graduate percentage of graduates

censusresp census response rate

fiveyear five year dummies, one of '93-97', '98-02', '03-07'

deadline is there a deadline ? one of 'none', 'soft' and 'hard'

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Andersen, Asger Lau; Lassen, David Dreyer and Lasse Holboll Westh Nielsen (2012) "Late Budgets", *American Economic Journal, Economic Policy*, **4(4)**, 1-40, doi: [10.1257/pol.4.4.1](https://doi.org/10.1257/pol.4.4.1) .

Examples

```
#### Example 8-4

## -----
data("LateBudgets", package = "pder")
library("plm")
LateBudgets$dayslatepos <- pmax(LateBudgets$dayslate, 0)
LateBudgets$divgov <- with(LateBudgets,
                           factor(splitbranch == "yes" |
                                   splitleg == "yes",
                                   labels = c("no", "yes")))
LateBudgets$unemprise <- pmax(LateBudgets$unempdiff, 0)
LateBudgets$unempfall <- - pmin(LateBudgets$unempdiff, 0)
form <- dayslatepos ~ unemprise + unempfall + divgov + elecyear +
  pop + fulltimeleg + shutdown + censusresp + endbalance + kids +
  elderly + demgov + lameduck + newgov + govexp + nocarry +
  supmaj + black + graduate

## -----
FEtobit <- pldv(form, LateBudgets)
summary(FEtobit)
```

Mafia

Mafia and Public Spending

Description

yearly observations of 95 provinces from 1986 to 1999

number of observations : 1330

number of time-series : 14

country : Italy

package : panelivreg

JEL codes: D72, E62, H71, K42

Chapter : 06

Usage

```
data(Mafia)
```

Format

A dataframe containing:

province the province (95)

region the region (19)

- year** the year
- pop** the population
- y** percentage growth of real per-capita value added
- g** annual variation of the per-capita public investment in infrastructure divided by lagged real per-capita value added
- cd** number of municipalities placed under the administration of external commissioners
- cds1** same as cd, provided that the official decree is published in the first semester of the year
- cds2** same as cd, provided that the average number of days between the dismissal of the city council and the year end is less than 180
- u1** change in the log of per-capita employment
- u2** change in the log of per-capita hours of wage supplement provided by the unemployment insurance scheme
- mafiosi** first difference of the number of people reported by the police forces to the judicial authority because of mafia-type association
- extortion** first difference of the number of people reported by the police forces to the judicial authority because of extortion
- corruption1** first difference of the number of people reported by the police forces to the judicial authority because of corruption
- corruption2** first difference of the number of crimes reported by the police forces to the judicial authority because of corruption
- murder** first difference of the number of people reported by the police forces to the judicial authority because of murder related to mafia activity

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Acconcia, Antonio; Corsetti, Giancarlo and Saviero Simonelli (2014) "Mafia and Public Spending: Evidence on the Fiscal Multiplier From a Quasi-experiment", *American Economic Review*, **104(7)**, 2189-2209, doi: [10.1257/aer.104.7.2185](https://doi.org/10.1257/aer.104.7.2185) .

MagazinePrices

Magazine Prices

Description

yearly observations of 38 magazines from 1940 to 1980

number of observations : 1262

number of time-series : 41

country : United States

package : binomialpanel

JEL codes: L82

Chapter : 08

Usage

```
data(MagazinePrices)
```

Format

A dataframe containing:

year the year

magazine the magazine name

price the price of the magazine in january

change has the price changed between january of the current year and january of the following year ?

length number of years since the previous price change

cpi gdp deflator index

cuminf cumulative change in inflation since the previous price change

sales single copy sales of magazines for magazine industry

cumsales cumulative change in magazine industry sales since previous price change

included is the observation included in the econometric analysis ?

id group index numbers used for the conditional logit estimation

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Willis, Jonathan L. (2006) "Magazine Prices Revisited", *Journal of Applied Econometrics*, **21(3)**, 337-344, doi: [10.1002/jae.836](https://doi.org/10.1002/jae.836) .

Cecchetti, Stephen G. (1986) "The Frequency of Price Adjustment, a Study of Newsstand Prices of Magazines", *Journal of Econometrics*, **31**, 255-274, doi: [10.1016/03044076\(86\)900618](https://doi.org/10.1016/03044076(86)900618) .

Examples

```
#### Example 8-3

## -----
data("MagazinePrices", package = "pder")
logitS <- glm(change ~ length + cuminf + cumsales, data = MagazinePrices,
              subset = included == 1, family = binomial(link = 'logit'))
logitD <- glm(change ~ length + cuminf + cumsales + magazine,
              data = MagazinePrices,
              subset = included == 1, family = binomial(link = 'logit'))

if (requireNamespace("survival")){
  library("survival")
  logitC <- clogit(change ~ length + cuminf + cumsales + strata(id),
                  data = MagazinePrices,
```

```
subset = included == 1)
if (requireNamespace("texreg")){
  library("texreg")
  screenreg(list(logit = logitS, "FE logit" = logitD,
                "cond. logit" = logitC), omit.coef = "magazine")
}
}
```

RDPerfComp

R and D Performing Companies

Description

yearly observations of 509 firms from 1982 to 1989
number of observations : 4072
number of time-series : 8
country : United States
package : panel
JEL codes: C51, D24
Chapter : 07

Usage

```
data(RDPerfComp)
```

Format

A dataframe containing:

id firm identifier

year year

y production in logs

n labor in logs

k capital in logs

Source

author's website <https://www.nuffield.ox.ac.uk/users/bond/index.html>

References

Blundell, Richard and Stephen Bond (2000) "GMM Estimation with Persistent Panel Data: An Application to Production Functions", *Econometric Reviews*, **19**(3), 321-340, doi: [10.1080/07474930008800475](https://doi.org/10.1080/07474930008800475)

RDSpillovers

Research and Development Spillovers Data

Description

a cross-section of 119 industries from 1980 to 2005

country : world

package : panel

JEL codes: C51, D24, O32, O33

Chapter : 04, 05, 09

Usage

```
data(RDSpillovers)
```

Format

A dataframe containing:

id country-industry index

year year

country country

sector manufacturing sector as SIC 15-37, excluding SIC 23

lny log output

lnl log of labour input

lnk log of physical capital stock

lnrd log of RD capital stock

Source

author's web site <https://sites.google.com/site/medevecon/home>

References

Eberhardt, M.; Helmers, C. and H. Strauss (2013) "Do Spillovers Matter in Estimating Private Returns to R and D?", *The Review of Economics and Statistics*, **95**(2), 436–448, doi: [10.1162/REST_a_00272](https://doi.org/10.1162/REST_a_00272).

Examples

```
#### Example 4-10

## -----
## Not run:
data("RDSpillovers", package = "pder")
library("plm")
fm.rds <- lny ~ ln1 + lnk + lnrd

## -----
pcdtest(fm.rds, RDSpillovers)

## -----
rds.2fe <- plm(fm.rds, RDSpillovers, model = "within", effect = "twoways")
pcdtest(rds.2fe)

## -----
cbind("rho" = pcdtest(rds.2fe, test = "rho")$statistic,
      "|rho|" = pcdtest(rds.2fe, test = "absrho")$statistic)

#### Example 5-10

## -----
data("RDSpillovers", package = "pder")
pehs <- pdata.frame(RDSpillovers, index = c("id", "year"))
ehsfm <- lny ~ ln1 + lnk + lnrd
phtest(ehsfm, pehs, method = "aux")

## -----
phtest(ehsfm, pehs, method = "aux", vcov = vcovHC)

#### Example 5-15

## -----
fm <- lny ~ ln1 + lnk + lnrd

## -----

if (requireNamespace("lmtest")){
  library("lmtest")
  gglsmodehs <- pggls(fm, RDSpillovers, model = "pooling")
  coeftest(gglsmodehs)

  feglsmodehs <- pggls(fm, RDSpillovers, model = "within")
  coeftest(feglsmodehs)

  phtest(gglsmodehs, feglsmodehs)

  fdglsmodehs <- pggls(fm, RDSpillovers, model = "fd")
}
```

```

fee <- resid(feglsmodehs)
dbfee <- data.frame(fee=fee, id=attr(fee, "index")[[1]])
coefstest(plm(fee~lag(fee)+lag(fee,2), dbfee, model = "p", index="id"))

fde <- resid(fdglsmodehs)
dbfde <- data.frame(fde=fde, id=attr(fde, "index")[[1]])
coefstest(plm(fde~lag(fde)+lag(fde,2), dbfde, model = "p", index="id"))

coefstest(fdglsmodehs)
}

#### Example 9-7

## -----
ccep.rds <- pcce(fm.rds, RDSpillovers, model="p")
if (requireNamespace("lmtest")){
  library("lmtest")
  ccep.tab <- cbind(coefstest(ccep.rds)[, 1:2],
                   coefstest(ccep.rds, vcov = vcovNW)[, 2],
                   coefstest(ccep.rds, vcov = vcovHC)[, 2])
  dimnames(ccep.tab)[[2]][2:4] <- c("Nonparam.", "vcovNW", "vcovHC")
  round(ccep.tab, 3)
}

## -----
autoreg <- function(rho = 0.1, T = 100){
  e <- rnorm(T+1)
  for (t in 2:(T+1)) e[t] <- e[t]+rho*e[t-1]
  e
}
set.seed(20)

f <- data.frame(time = rep(0:40, 2),
                rho = rep(c(0.2, 1), each = 41),
                y = c(autoreg(rho = 0.2, T = 40),
                      autoreg(rho = 1, T = 40)))
if (requireNamespace("ggplot2")){
  library("ggplot2")
  ggplot(f, aes(time, y)) + geom_line() + facet_wrap(~ rho) + xlab("") + ylab("")

  autoreg <- function(rho = 0.1, T = 100){
    e <- rnorm(T)
    for (t in 2:(T)) e[t] <- e[t] + rho *e[t-1]
    e
  }
  tstat <- function(rho = 0.1, T = 100){
    y <- autoreg(rho, T)
    x <- autoreg(rho, T)
    z <- lm(y ~ x)
    coef(z)[2] / sqrt(diag(vcov(z)))[2])
  }
}

```

```

}
result <- c()
R <- 1000
for (i in 1:R) result <- c(result, tstat(rho = 0.2, T = 40))
quantile(result, c(0.025, 0.975))
prop.table(table(abs(result) > 2))

result <- c()
R <- 1000
for (i in 1:R) result <- c(result, tstat(rho = 1, T = 40))
quantile(result, c(0.025, 0.975))
prop.table(table(abs(result) > 2))

R <- 1000
T <- 100
result <- c()
for (i in 1:R){
  y <- autoreg(rho=1, T=100)
  Dy <- y[2:T] - y[1:(T-1)]
  Ly <- y[1:(T-1)]
  z <- lm(Dy ~ Ly)
  result <- c(result, coef(z)[2] / sqrt(diag(vcov(z))[2]))
}

ggplot(data.frame(x = result), aes(x = x)) +
  geom_histogram(fill = "white", col = "black",
                 bins = 20, aes(y = ..density..)) +
  stat_function(fun = dnorm) + xlab("") + ylab("")

prop.table(table(result < -1.64))
}

## End(Not run)

```

Reelection

Deficits and Reelection

Description

yearly observations of 75 countries from 1960 to 2003

number of observations : 439

number of time-series : 16

country : world

package : panelbinomial

JEL codes: D72, E62, H62, O47

Chapter : 08

Usage

```
data(Reelection)
```

Format

A dataframe containing:

country the country

year the year

narrow TRUE if the observation belongs to the narrow data set

reelect one if the incumbent was reelected and zero otherwise

ddefterm the change in the ratio of the government surplus to gdp in the two years preceding the election year, relative to the two previous years

ddefey the change in the government surplus ratio to gdp in the election year, compared to the previous year

gdppc the average growth rate of real per capita gdp during the leader's current term

dev one for developed countries, 0 otherwise

nd one for a new democratic country, 0 otherwise

maj one for majoritarian electoral system, 0 otherwise

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Adi Brender and Allan Drazen (2008) "How Do Budget Deficits and Economic Growth Affect Reelection Prospects? Evidence From a Large Panel of Countries", *American Economic Review*, **98**(5), 2203-2220, doi: [10.1257/aer.98.5.2203](https://doi.org/10.1257/aer.98.5.2203) .

Examples

```
#### Example 8-1

## -----
## Not run:
library("plm")
data("Reelection", package = "pder")

## -----
elect.l <- glm(reelect ~ ddefterm + ddefey + gdppc + dev + nd + maj,
              data = Reelection, family = "binomial", subset = narrow)
l2 <- update(elect.l, family = binomial)
l3 <- update(elect.l, family = binomial())
l4 <- update(elect.l, family = binomial(link = 'logit'))

## -----
```

```

elect.p <- update(elect.l, family = binomial(link = 'probit'))

## -----

if (requireNamespace("pglm")){
  library("pglm")
  elect.pl <- pglm(reelect ~ ddefterm + ddefey + gdppc + dev + nd + maj,
    Reelection, family = binomial(link = 'logit'),
    subset = narrow)
  elect.pp <- pglm(reelect ~ ddefterm + ddefey + gdppc + dev + nd + maj,
    Reelection, family = binomial(link = 'probit'),
    subset = narrow)
}

## End(Not run)

```

 RegIneq

Interregional Redistribution and Inequalities

Description

yearly observations of 17 countries from 1982 to 1999
number of observations : 102
number of time-series : 6
country : oecd
package : panel
JEL codes: D72, H23, H71, H73, H77, R12, R23
Chapter : 07

Usage

```
data(RegIneq)
```

Format

A dataframe containing:

country the country
period the period
regineq coefficient of variatio of regional gdp per capita
gdppc real gross domestic product per capita
pop total population
popgini gini coefficient of regional population size
urban share of urban living population
social total government social expenditures as share of gdp

unempl unemployment rate

dec sub-national expenditures as share of total government expenditures

transrev grants received by national and sub-national governments from other levels of government as share of total government revenues

transaut sub-national non autonomous revenues as share of total government revenues

Source

Review of Economic Studies' web site <https://academic.oup.com/restud>

References

Anke S. Kessler and Nico A. Hansen and Christian Lessmann (2011) "Interregional Redistribution and Mobility in Federations: a Positive Approach", *Review of Economic Studies*, **78(4)**, 1345-1378, doi: [10.1093/restud/rdr003](https://doi.org/10.1093/restud/rdr003).

ScrambleAfrica

The Long-run Effects of the Scramble for Africa

Description

a pseudo-panel of 49 countries

number of observations : 1212

number of individual observations : 2-112

country : Africa

package : countpanel

JEL codes: D72, D74, F51, J15, O15, O17, Z13

Chapter : 08

Usage

`data(ScrambleAfrica)`

Format

A dataframe containing:

country country code

group ethnic group name

conflicts number of conflicts

split dummy for partitioned ethnic area

spillover spillover index, the fraction of adjacent groups in the same country that are partitioned

region the region

pop population according to the first post-independence census
area land area
lake lakes dummy
river rivers dummy
capital dummy if a capital city falls in the homeland of an ethnic group
borderdist distance of the centroid of the area from the national border
capdist distance of the centroid of the area from the capital
seadist distance of the centroid of the area from the sea coast
coastal dummy for areas that are by the sea coast
meanelev mean elevation
agriculture index of land suitability for agriculture
diamond diamond mine indicator
malaria malaria stability index
petroleum oil field indicator
island island dummy
city1400 dummy for areas with major city in 1400

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Michalopoulos, Stelios and Elias Papaioannou (2016) “The Long-run Effects of the Scramble for Africa”, *American Economic Review*, **106(7)**, 1802–1848, doi: [10.1257/aer.20131311](https://doi.org/10.1257/aer.20131311) .

SeatBelt

Seat Belt Usage and Traffic Fatalities

Description

yearly observations of 51 states from 1983 to 1997
number of observations : 765
number of time-series : 15
country : United States
package : panel
JEL codes: R41, K42
Chapter : 06

Usage

data(SeatBelt)

Format

A dataframe containing:

state the state code

year the year

farsocc the number of traffic fatalities of drivers and passengers (of any seating position) of a motor vehicle in transport

farsnoc the number of traffic fatalities of pedestrians and bicyclists

usage rate of seat belt usage

percapi median income in current US dollars

unemp unemployment rate

meanage mean age

precentb the percentage of african-americans in the state population

precenth the percentage of people of hispanic origin in the state population

densurb traffic density urban ; registered vehicles per unit length of urban roads in miles

densrur traffic density rural ; registered vehicles per unit length of urban roads in miles

viopcap number of violent crimes (homicide, rape and robbery) per capita

proppcap number of property crimes (burglary, larceny and auto theft) per capita

vmtrural vehicle miles traveled on rural roads

vmturban vehicle miles traveled on urban roads

fueltax fuel tax (in current cents)

lim65 65 miles per hour speed limit (55 mph is the base category)

lim70p 70 miles per hour or above speed limit (55 mph is the base category)

mlda21 a dummy variable that is equal to 1 for a minimum for a minimum legal drinking age of 21 years (18 years is the base category)

bac08 a dummy variable that is equal to 1 for a maximum of 0.08 blood alcohol content (0.1 is the base category)

ds a dummy equal to 1 for the periods in which the state had a secondary-enforcement mandatory seat belt law, or a primary-enforcement law that preceded by a secondary-enforcement law (no seat belt law is the base category)

dp a dummy variable equal to 1 for the periods in which the state had a primary-enforcement mandatory seat belt law that was not preceded by a secondary-enforcement law (no seat belt is the base category)

dsp a dummy variable equal to 1 for the periods in which the state had a primary-enforcement mandatory seat belt law that was preceded by a secondary enforcement law (no seat belt law is the base category)

Source

author's website <https://leinav.people.stanford.edu>

References

Cohen, Alma and Liran Einav (2003) “The Effects of Mandatory Seat Belt Laws on Driving Behavior and Traffic Fatalities”, *The Review of Economics and Statistics*, **85(4)**, 828-843, doi: [10.2139/ssrn.293582](https://doi.org/10.2139/ssrn.293582) .

Examples

```
#### Example 6-1

## -----
## Not run:
library("plm")

## -----
y ~ x1 + x2 + x3 | x1 + x3 + z
y ~ x1 + x2 + x3 | . - x2 + z

## -----

data("SeatBelt", package = "pder")
SeatBelt$occfat <- with(SeatBelt, log(farsocc / (vmtrural + vmturban)))
ols <- plm(occfat ~ log(usage) + log(percapin) + log(unemp) + log(meanage) +
  log(precentb) + log(precenth) + log(densrur) +
  log(densurb) + log(viopcap) + log(propccap) +
  log(vmtrural) + log(vmturban) + log(fueltax) +
  lim65 + lim70p + mllda21 + bac08, SeatBelt,
  effect = "time")
fe <- update(ols, effect = "twoways")
ivfe <- update(fe, . ~ . | . - log(usage) + ds + dp + dsp)

rbind(ols = coef(summary(ols))[1, ],
      fe = coef(summary(fe))[1, ],
      w2s1s = coef(summary(ivfe))[1, ])

## -----
SeatBelt$noccfat <- with(SeatBelt, log(farsnoc / (vmtrural + vmturban)))
nivfe <- update(ivfe, noccfat ~ . | .)
coef(summary(nivfe))[1, ]

## End(Not run)
```

Seniors

Intergenerationals Experiments

Description

a pseudo-panel of 159 Individuals

number of observations : 2703

number of individual observations : 17

country : France
package : panellimdep
JEL codes: C90, J14, J26, M12, M51
Chapter : 08

Usage

data(Seniors)

Format

A dataframe containing:

id individual number of each subject
period from 1 to 17
session from 1 to 12
firm 1 if working subject, 0 otherwise
firmx 1 if the firm is X, 0 if the firm is Y
order 1 if the treatment with no information on the generation of the group is played first in the Public Good game, 0 otherwise
gender 1 if male subject, 0 if female subject
manager 1 if the subject is a manager, 0 otherwise
student 1 if the subject is a student, 0 otherwise
retir 1 if retiree, 0 otherwise
senior 1 if the subject is a senior, 0 otherwise
seniord 1 if the subject reports s/he is a senior, 0 if junior
workingsenior 1 if the subject is a working senior, 0 otherwise
workingjunior 1 if the subject is a working junior, 0 otherwise
information 1 if information is given on the generation composition of the group, 0 otherwise
nbseniors number of seniors in the group, excluding the subject
homogend 1 if the group is homogenous in terms of declared generation, 0 otherwise
homodgenck 1 if the group is homogenous in terms of declared generation and this is common information, 0 otherwise
contribution amount of the contribution to the public good (from 0 to 20)
pot amount of the public good (from 0 to 60)
potlag amount of the public good in the previous period (from 0 to 60)
potimean amount of the public good, excluding the subject's contribution (from 0 to 40)
potimeanlag amount of the public good in the previous period, excluding the subject's contribution (from 0 to 40)
payoffpggame payoff in the public good game
desirnbseiors desired number of seniors co-participants in the Selection treatment (from 0 to 2)

invest amount invested in the risky lottery

payoffriskgame payoff in the investment game

letters 1 if letters are A M F U R I P , 0 if they are OATFNED

idicompet individual number of the co-participant in the Task game

seniordopponent 1 if the co-participant in the Task game reports s/he is a senior, 0 otherwise

seniori 1 if the co-participant in the Task game is a senior

option 1 if the subject has chosen the tournament, 0 otherwise

option0 1 if the co-participant has chosen the tournament, 0 otherwise

twoperstour 1 if both participants have chosen the tournament, 0 otherwise

beliefself number of words the subject believes s/he will create

beliefseniors number of words the subject believes the seniors will create on average

beliefjuniors number of words the subject believes the juniors will create on average

beliefsmatches number of words the subject believes the seniors will create on average when matched with a senior

beliefjmatchj number of words the subject believes the juniors will create on average when matched with a junior

relatabil 1 if the subject believes s/he can create more words than the generation of his/her co-participant, 0 otherwise

performance number of words actually created

perfi number of words actually created by the co-participant

payoffcompetitiongame payoff in the Task game

expesenck 1 if the subject has been informed that s/he was interacting with seniors in the Public Good game, 0 otherwise

potlagsenior Amount of the pot in the previous period * the subject is a senior

heterogend 1 if the group mixes the two generations, 0 otherwise

Source

American Economic Association Data Archive : <https://www.aeaweb.org/aer/>

References

Charness, Gary and Marie-Claire Villeval (2009) "Cooperation and Competition in Intergenerational Experiments in the Field and the Laboratory", *American Economic Review*, **99(3)**, 956–978, doi: [10.1257/aer.99.3.956](https://doi.org/10.1257/aer.99.3.956) .

Solow

Growth Model

Description

yearly observations of 97 countries from 1960 to 1985

number of observations : 576

number of time-series : 6

country : world

package : panel

JEL codes: O47, O41

Chapter : 07

Usage

```
data(Solow)
```

Format

A dataframe containing:

id country id

year year

lgdp log of gdp per capita

lsrate log of the saving rate, approximated by the investment rate

lpopg log of population growth + 0.05 (which is an approximation of the sum of the rate of labor-augmenting technological progress and of the rate of depreciation of physical capital)

Source

author's website <https://www.nuffield.ox.ac.uk/users/bond/index.html>

References

Caselli, Francesco; Esquivel, Gerardo and Fernando Lefort (1996) "Reopening the Convergence Debate: a New Look at Cross-country Growth Empirics", *Journal of Economic Growth*, **1**, 363-389, doi: [10.1007/BF00141044](https://doi.org/10.1007/BF00141044) .

Bond, Stephen; Hoeffler, Anke and Johnatan Temple (2001) "GMM Estimation of Empirical Growth Model", *CEPR Discussion Paper*, **3048**, 1-33.

TexasElectr *Production of Electricity in Texas*

Description

yearly observations of 10 firms from 1966 to 1983

number of observations : 180

number of time-series : 18

country : Texas

package : productionpanel

JEL codes: D24, C13, C51, C23, J31

Chapter : 02, 03

Usage

```
data(TexasElectr)
```

Format

A dataframe containing:

id the firm identifier

year the year, from 1966 to 1983

output output

pfuel price of fuel

plab price of labor

pcap price of capital

expfuel expense in fuel

explab expense in labor

expcap expense in capital

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Kumbhakar SC (1996) “Estimation of Cost Efficiency with Heteroscedasticity: An Application to Electric Utilities”, *Journal of the Royal Statistical Society, Series D*, **45**, 319–335.

Horrace and Schmidt (1996) “Confidence Statements for Efficiency Estimates From Stochastic Frontier Models”, *Journal of Productivity Analysis*, **7**, 257–282, doi: [10.1007/BF00157044](https://doi.org/10.1007/BF00157044) .

Horrace and Schmidt (2012) “Multiple Comparisons with the Best, with Economic Applications”, *Journal of Applied Econometrics*, **15(1)**, 1–26, doi: [10.1002/\(SICI\)10991255\(200001/02\)15:1<1::AID-JAE551>3.0.CO;2Y](https://doi.org/10.1002/(SICI)10991255(200001/02)15:1<1::AID-JAE551>3.0.CO;2Y) .

Examples

```

#### Example 2-6

## -----
data("TexasElectr", package = "pder")
library("plm")
TexasElectr$cost <- with(TexasElectr, explab + expfuel + expcap)
TE <- pdata.frame(TexasElectr)
summary(log(TE$output))
ercomp(log(cost) ~ log(output), TE)
models <- c("within", "random", "pooling", "between")
sapply(models, function(x)
  coef(plm(log(cost) ~ log(output), TE, model = x))["log(output)"])

#### Example 3-2

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

if (requireNamespace("dplyr")){
  library("dplyr")
  TexasElectr <- mutate(TexasElectr,
    pf = log(pfuel / mean(pfuel)),
    pl = log(plab / mean(plab)) - pf,
    pk = log(pcap / mean(pcap)) - pf)

## -----
  TexasElectr <- mutate(TexasElectr, q = log(output / mean(output)))

## -----
  TexasElectr <- mutate(TexasElectr,
    C = expfuel + explab + expcap,
    sl = explab / C,
    sk = expcap / C,
    C = log(C / mean(C)) - pf)

## -----
  TexasElectr <- mutate(TexasElectr,
    pll = 1/2 * pl ^ 2,
    plk = pl * pk,
    pkk = 1/2 * pk ^ 2,
    qq = 1/2 * q ^ 2)

## -----
  cost <- C ~ pl + pk + q + pll + plk + pkk + qq
  shlab <- sl ~ pl + pk
  shcap <- sk ~ pl + pk

## -----
  R <- matrix(0, nrow = 6, ncol = 14)
  R[1, 2] <- R[2, 3] <- R[3, 5] <- R[4, 6] <- R[5, 6] <- R[6, 7] <- 1
  R[1, 9] <- R[2, 12] <- R[3, 10] <- R[4, 11] <- R[5, 13] <- R[6, 14] <- -1

```

```
## -----
z <- plm(list(cost = C ~ pl + pk + q + pll + plk + pkk + qq,
             shlab = sl ~ pl + pk,
             shcap = sk ~ pl + pk),
         TexasElectr, model = "random",
         restrict.matrix = R)
summary(z)
}
```

Tileries

Production of Tileries in Egypt

Description

weekly observations of 25 firms from 1982 to 1983

number of observations : 483

number of time-series : 22

country : Egypt

package : panelproduction

JEL codes: D24, C13, C51, C23, J31

Chapter : 01, 03

Usage

```
data(Tileries)
```

Format

A dataframe containing:

id firm id

week week (3 weeks aggregated)

area one of "fayoum" and "kalyubiya"

output output

labor labor hours

machine machine hours

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Horrace and Schmidt (1996) “Confidence Statements for Efficiency Estimates From Stochastic Frontier Models”, *Journal of Productivity Analysis*, **7**, 257–282, doi: [10.1007/BF00157044](https://doi.org/10.1007/BF00157044) .

Horrace and Schmidt (2012) “Multiple Comparisons with the Best, with Economic Applications”, *Journal of Applied Econometrics*, **15(1)**, 1–26, doi: [10.1002/\(SICI\)10991255\(200001/02\)15:1<1::AID-JAE551>3.0.CO;2Y](https://doi.org/10.1002/(SICI)10991255(200001/02)15:1<1::AID-JAE551>3.0.CO;2Y) .

Seale J.L. (1990) “Estimating Stochastic Frontier Systems with Unbalanced Panel Data: the Case of Floor Tile Manufactories in Egypt”, *Journal of Applied Econometrics*, **5**, 59–79, doi: [10.1002/jae.3950050105](https://doi.org/10.1002/jae.3950050105) .

Examples

```
#### Example 1-2

## -----
data("Tileries", package = "pder")
library("plm")
coef(summary(plm(log(output) ~ log(labor) + machine, data = Tileries,
                subset = area == "fayoum")))

## -----
coef(summary(plm(log(output) ~ log(labor) + machine, data = Tileries,
                model = "pooling", subset = area == "fayoum")))

#### Example 1-5

## -----
data("Tileries", package = "pder")
til.fm <- log(output) ~ log(labor) + log(machine)
lm.mod <- lm(til.fm, data = Tileries, subset = area == "fayoum")

## -----
if (requireNamespace("car")){
  library("car")
  lht(lm.mod, "log(labor) + log(machine) = 1")

## -----
  library("car")
  lht(lm.mod, "log(labor) + log(machine) = 1", vcov=vcovHC)
}

#### Example 1-6

## -----
plm.mod <- plm(til.fm, data = Tileries, subset = area == "fayoum")

## -----
if (requireNamespace("car")){
  library("car")
```

```

    lht(plm.mod, "log(labor) + log(machine) = 1", vcov = vcovHC)
  }

#### Example 3-1

## -----
library(plm)
data("Tileries", package = "pder")
head(Tileries, 3)
pdim(Tileries)

## -----
Tileries <- pdata.frame(Tileries)
plm.within <- plm(log(output) ~ log(labor) + log(machine), Tileries)
y <- log(Tileries$output)
x1 <- log(Tileries$labor)
x2 <- log(Tileries$machine)
lm.within <- lm(I(y - Between(y)) ~ I(x1 - Between(x1)) + I(x2 - Between(x2)) - 1)
lm.lsdv <- lm(log(output) ~ log(labor) + log(machine) + factor(id), Tileries)
coef(lm.lsdv)[2:3]
coef(lm.within)
coef(plm.within)

## -----
tile.r <- plm(log(output) ~ log(labor) + log(machine), Tileries, model = "random")
summary(tile.r)

## -----
plm.within <- plm(log(output) ~ log(labor) + log(machine),
                 Tileries, effect = "twoways")
lm.lsdv <- lm(log(output) ~ log(labor) + log(machine) +
             factor(id) + factor(week), Tileries)
y <- log(Tileries$output)
x1 <- log(Tileries$labor)
x2 <- log(Tileries$machine)
y <- y - Between(y, "individual") - Between(y, "time") + mean(y)
x1 <- x1 - Between(x1, "individual") - Between(x1, "time") + mean(x1)
x2 <- x2 - Between(x2, "individual") - Between(x2, "time") + mean(x2)
lm.within <- lm(y ~ x1 + x2 - 1)
coef(plm.within)
coef(lm.within)
coef(lm.lsdv)[2:3]

## -----
wh <- plm(log(output) ~ log(labor) + log(machine), Tileries,
         model = "random", random.method = "walhus",
         effect = "twoways")
am <- update(wh, random.method = "amemiya")
sa <- update(wh, random.method = "swar")
ercomp(sa)

## -----
re.models <- list(walhus = wh, amemiya = am, swar = sa)

```

```
sapply(re.models, function(x) sqrt(ercomp(x)$sigma2))
sapply(re.models, coef)
```

TobinQ

The Q Theory of Investment

Description

yearly observations of 188 firms from 1951 to 1985

number of observations : 6580

number of time-series : 35

country : United States

package : panel

Chapter : 02

Usage

```
data(TobinQ)
```

Format

A dataframe containing:

cusip compustat's identifying number

year year

isic sic industry classification

ikb investment divided by capital : broad definition

ikn investment divided by capital : narrow definition

qb Tobin's Q : broad definition

qn Tobin's Q : narrow definition

kstock capital stock

ikicb investment divided by capital with imperfect competition : broad definition

ikicn investment divided by capital with imperfect competition : narrow definition

omphi one minus phi (see the article p. 320)

qicb Tobin's Q with imperfect competition : broad definition

qicn Tobin's Q with imperfect competition : narrow definition

sb S (see equation 10 p. 320) : broad definition

sn S (see equation 10 p. 320) : narrow definition

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Schaller, Huntley (1990) “A Re-examination of the Q Theory of Investment Using U.S. Firm Data”, *Journal of Applied Econometrics*, **5(4)**, 309–325, doi: [10.1002/jae.3950050402](https://doi.org/10.1002/jae.3950050402) .

Examples

```
#### Example 2-1

## -----
## Not run:
library("plm")
data("TobinQ", package = "pder")

## -----
pTobinQ <- pdata.frame(TobinQ)
pTobinQa <- pdata.frame(TobinQ, index = 188)
pTobinQb <- pdata.frame(TobinQ, index = c('cusip'))
pTobinQc <- pdata.frame(TobinQ, index = c('cusip', 'year'))

## -----
pdim(pTobinQ)

## ----results = 'hide'-----
pdim(TobinQ, index = 'cusip')
pdim(TobinQ)

## -----
head(index(pTobinQ))

## -----
Qeq <- ikn ~ qn
Q.pooling <- plm(Qeq, pTobinQ, model = "pooling")
Q.within <- update(Q.pooling, model = "within")
Q.between <- update(Q.pooling, model = "between")

## -----
Q.within
summary(Q.within)

## -----
head(fixef(Q.within))
head(fixef(Q.within, type = "dfirst"))
head(fixef(Q.within, type = "dmean"))

## -----
head(coef(lm(ikn ~ qn + factor(cusip), pTobinQ)))

#### Example 2-2

## -----
Q.swar <- plm(Qeq, pTobinQ, model = "random", random.method = "swar")
```

```

Q.swar2 <- plm(Qeq, pTobinQ, model = "random",
              random.models = c("within", "between"),
              random.dfcor = c(2, 2))
summary(Q.swar)

## -----
ercomp(Qeq, pTobinQ)
ercomp(Q.swar)

## -----
Q.walhus <- update(Q.swar, random.method = "swar")
Q.amemiya <- update(Q.swar, random.method = "amemiya")
Q.nerlove <- update(Q.swar, random.method = "nerlove")
Q.models <- list(swar = Q.swar, walhus = Q.walhus,
                amemiya = Q.amemiya, nerlove = Q.nerlove)
sapply(Q.models, function(x) ercomp(x)$theta)
sapply(Q.models, coef)

#### Example 2-3

## -----
sapply(list(pooling = Q.pooling, within = Q.within,
            between = Q.between, swar = Q.swar),
        function(x) coef(summary(x))["qn", c("Estimate", "Std. Error")])

## -----
summary(pTobinQ$qn)

## -----
SxxW <- sum(Within(pTobinQ$qn) ^ 2)
SxxB <- sum((Between(pTobinQ$qn) - mean(pTobinQ$qn)) ^ 2)
SxxTot <- sum( (pTobinQ$qn - mean(pTobinQ$qn)) ^ 2)
pondW <- SxxW / SxxTot
pondW
pondW * coef(Q.within)[["qn"]] +
  (1 - pondW) * coef(Q.between)[["qn"]]

## -----
T <- 35
N <- 188
smxt2 <- deviance(Q.between) * T / (N - 2)
sidios2 <- deviance(Q.within) / (N * (T - 1) - 1)
phi <- sqrt(sidios2 / smxt2)

## -----
pondW <- SxxW / (SxxW + phi^2 * SxxB)
pondW
pondW * coef(Q.within)[["qn"]] +
  (1 - pondW) * coef(Q.between)[["qn"]]

#### Example 2-8

```

```
## -----
Q.models2 <- lapply(Q.models, function(x) update(x, effect = "twoways"))
sapply(Q.models2, function(x) sqrt(ercomp(x)$sigma2))
sapply(Q.models2, function(x) ercomp(x)$theta)

## End(Not run)
```

TradeEU

Trade in the European Union

Description

yearly observations of 91 pairs of countries from 1960 to 2001

number of observations : 3822

number of time-series : 42

country : Europe

package : gravity

JEL codes: C51, F14

Chapter : 06

Usage

```
data(TradeEU)
```

Format

A dataframe containing:

year the year

pair a pair of countries

trade the sum of logged exports and imports, bilateral trade flow

gdp the sum of the logged real GDPs

sim a measure of similarity between two trading countries;

r1f a measure of relative factor endowments;

rer the logged bilateral real exchange rate;

cee a dummy equal to 1 when both belong to European Community;

emu a dummy equal to 1 when both adopt the common currency;

dist the geographical distance between capital cities;

bor a dummy equal to 1 when the trading partners share a border;

lan a dummy equal to 1 when both speak the same language;

rert the logarithm of real exchange rates between the European currencies and the U.S. dollar;

ftrade the time specific common factors (individual means) of the variables trade

fgdp the time specific common factors (individual means) of the variables gdp

fsim the time specific common factors (individual means) of the variables sim

frlf the time specific common factors (individual means) of the variables rlf

frer the time specific common factors (individual means) of the variables rer

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Serlenga, Laura and Yongcheol Shin (2007) “Gravity Models of Intra-eu Trade: Application of the Ccep-ht Estimation in Heterogenous Panels with Unobserved Common Time-specific Factors”, *Journal of Applied Econometrics*, **22**, 361–381, doi: [10.1002/jae.944](https://doi.org/10.1002/jae.944) .

Examples

```
#### Example 6-3

## -----
## Not run:
data("TradeEU", package = "pder")
library("plm")

## -----
ols <- plm(trade ~ gdp + dist + rer + rlf + sim + cee + emu + bor + lan, TradeEU,
           model = "pooling", index = c("pair", "year"))
fe <- update(ols, model = "within")
fe

## -----
re <- update(fe, model = "random")
re

## -----
phtest(re, fe)

## ----results='hide'-----
ht1 <- plm(trade ~ gdp + dist + rer + rlf + sim + cee + emu + bor + lan |
           rer + dist + bor | gdp + rlf + sim + cee + emu + lan ,
           data = TradeEU, model = "random", index = c("pair", "year"),
           inst.method = "baltagi", random.method = "ht")
ht2 <- update(ht1, trade ~ gdp + dist + rer + rlf + sim + cee + emu + bor + lan |
              rer + gdp + rlf + dist + bor | sim + cee + emu + lan)

## -----
phtest(ht1, fe)
phtest(ht2, fe)

## -----
ht2am <- update(ht2, inst.method = "am")
```

```
## -----
phtest(ht2am, fe)

## End(Not run)
```

| | |
|----------|---|
| TradeFDI | <i>Trade and Foreign Direct Investment in Germany and the United States</i> |
|----------|---|

Description

yearly observations of 490 combinations of countries / industries from 1989 to 1999
number of observations : 3860
number of time-series : 11
country : Germany and United States
package : gravity
JEL codes: F12, F14, F21, F23
Chapter : 06

Usage

```
data(TradeFDI)
```

Format

A dataframe containing:

id id
year time period
country country name
indusid industry code
importid importer code
lrex log real bilateral exports
lrfdi log real bilateral outward stocks of FDI
lgdt log sum of bilateral real GDP
lsimi $\log(1 - [\text{exporter GDP}/(\text{exporter} + \text{importer GDP})]^2 - [\text{exporter GDP}/(\text{exporter} + \text{importer GDP})]^2)$
lrk log (real capital stock of exporter/real capital stock of importer)
lrh log (secondary school enrolment of exporter/secondary school enrolment of importer)
lrl log (labor force of exporter/labor force of importer)
ldist log bilateral distance between exporter and importer
lkldist $(\text{lrk} - \text{lrl}) * \text{ldist}$
lkgdt $\text{abs}(\text{lrk}) * \text{lgdt}$

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Peter Egger and Michael Pfaffermayr (2004) “Distance, Trade, and Fdi: A Hausman-taylor Sur Approach”, *Journal of Applied Econometrics*, **19(2)**, 227–246, doi: [10.1002/jae.721](https://doi.org/10.1002/jae.721) .

TurkishBanks

Turkish Banks

Description

yearly observations of 53 banks from 1990 to 2000

number of observations : 583

number of time-series : 11

country : Turkey

package : productionpanel

JEL codes: D24, G21, L33

Chapter : 02

Usage

`data(TurkishBanks)`

Format

A dataframe containing:

id bank id

year the years

type one of "conventional" and "islamic"

pl price of labor

pf price of borrowed funds

pk price of physical capital

output output, total loans

cost total cost

empexp employee expenses

nbemp number of employees

faexp assets expenses

fa fixed assets

intexp total interest expenses (interest on deposits and non-deposit funds + other interest expenses),

bfunds borrowed funds (deposits + non-deposit funds)
dep deposits
nondep non-deposits
npl non performing loans
ec equity capital
quality quality index
rindex risk index
ta total assets
ts total securities (only for conventional banks)

Source

Journal of Applied Econometrics Data Archive : <http://qed.econ.queensu.ca/jae/>

References

Mahmoud A. El-Gamal and Hulusi Inanoglu (2005) “Inefficiency and Heterogeneity in Turkish Banking: 1990-2000”, *Journal of Applied Econometrics*, **20(5)**, 641–664, doi: [10.1002/jae.835](https://doi.org/10.1002/jae.835) .

Examples

```
#### Example 2-5

## -----
data("TurkishBanks", package = "pder")
library("plm")
TurkishBanks <- na.omit(TurkishBanks)
TB <- pdata.frame(TurkishBanks)
summary(log(TB$output))
ercomp(log(cost) ~ log(output), TB)
models <- c("within", "random", "pooling", "between")
sapply(models, function(x)
  coef(plm(log(cost) ~ log(output), TB, model = x))["log(output)"])
```

TwinCrises

Costs of Currency and Banking Crises

Description

yearly observations of 22 countries from 1970 to 1997
number of observations : 616
number of time-series : 28
country : world
package : panel
JEL codes: F32, G15, G21, O16, O19, O47
Chapter : 06

Usage

```
data(TwinCrises)
```

Format

A dataframe containing:

country the country name

year the year

gdp real gdp growth

pubsurp change in budget surplus to real gdp ratio

credit credit growth

extgdp external growth rates (weight average)

exr real exchange rate overvaluation

open openness

curcrises currency crises

bkcrises banking crises

twin twin crises

area a factor with levels 'other', 'asia' and 'latam' (for latin America)

Source

Journal of Money, Credit and Banking : <https://jmcb.osu.edu/archive>

References

Hutchison, Michael M. and Ilan Noy (2005) "How Bad Are Twins ? Output Costs of Currency and Banking Crises", *Journal of Money, Credit and Banking*, **37(4)**, 725–752.

usaw

Spatial weights matrix - 49 US states

Description

Spatial weights matrix of the 48 continental US States plus District of Columbia based on the queen contiguity criterium.

Usage

```
data(usaw49)
```

```
data(usaw46)
```

Format

A matrix with elements different from zero if state i and j are neighbors. Weights are row standardized. According to the queen contiguity criterium, Arizona and Colorado are considered neighbours. Two versions are provided, one for 49 States, the other one for 46 States.

Author(s)

Giovanni Millo

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